



ACOUSTICS

"Underwater Acoustics: Volume 2," edited by V.M. Albers, Plenum Press, New York, 1967, 416 + xiii pp., indexed, illus.

This book is a compilation of lectures presented at the Second Institute on Underwater Acoustics, Copenhagen, 1966. It includes 18 lectures by outstanding scientists, each an authority in his field. The lectures and their bibliographies make the book an invaluable reference.

The subjects include: advanced transducers; underwater sound in marine biology and geology; frequency discrimination in the common seal; sound propagation in the presence of bladder fish; flow noise; sound propagation and ambient noise under ice; sound scattering; underwater sound in oceanography; internal waves, and transmission rates in underwater acoustic telemetry.

ENCYCLOPEDIA OF MARINE RESOURCES

"The Encyclopedia of Marine Resources," edited by Frank E. Firth, Van Nostrand, Princeton, N.J., 1969, 740 + xi pp., indexed, illus., \$25.

A handy reference compiled in response to the demand for readily accessible information on rapidly expanding undersea frontier. It covers more than 125 topics of current interest, from abalone to underwater mining; it includes minerals, bio-dynamics, food production, at-sea freezing and processing, fishing gear and equipment, pollution, and farming the sea.

FISHING EFFORT

"The Concept of the Marginal Yield from Exploited Fish Stocks," by J.A. Gulland, article (J. Cons. perm. inte. Explor. Mer., Vol. 32, No. 2, Nov. 1968, pp. 256-61).

When fishing effort increases on an exploited stock, the increase in total yield (the marginal yield) is less than might be estimated from the product of the increase in effort and the catch-per-unit effort. Marginal efficiency is the actual increase percentage of the expected increase. It can be near 100% for very lightly fished stocks, and decrease to near zero, or become even negative, for heavily fished stocks.

Mr. Gulland examines marginal efficiency as a function of catch for 2 commonly used population models. He discusses the implication of the concepts of marginal yield and marginal efficiency for fishery management and for planning fishery development.

OCEANOGRAPHIC RESEARCH

"Oceanographic Ship Operating Schedules," available free from Marine Sciences Affairs Staff, Office of the Oceanographer of the Navy, Bldg. 159E, Rm. 476, Washington Navy Yard, Washington, D. C. 20390.

A list of planned schedules and areas of operation of 79 U.S. Government-owned or sponsored research vessels, and Coast Guard ships at 6 ocean stations, participating in the national marine science program from November 1969 to April 1970. Many are equipped to accommodate visiting scientists and additional instrumentation.

Expected cruise dates, areas, and type of work--fishery research, plankton studies, etc.--are given for each ship. Interested scientists may apply for available berth space directly to agency or institution operating specific ships. Research data obtained during cruises may be obtained from the National Oceanographic Data Center, Bldg. 160, Washington Navy Yard, Washington, D.C. 20390

PESTICIDES

"Pesticides in Surface Waters of the United States: a Five-Year Summary 1964-1968," by J.J. Lichtenberg, J.W. Eichelberger, R.C. Dressman, and J.E. Longbottom, Department of the Interior, FWPCA, Analytical Quality Control Laboratory, Cincinnati, Ohio, Sept. 1969, 11 pp., 8 tables, illus.

A report on 5 annual synoptic surveys for chlorinated hydrocarbon pesticides showing widespread occurrences of such compounds. The most frequently detected were Dieldrin and DDT, and its close relatives DDE and DDD. The maximum concentrations found did not exceed permissible limits in relation to direct human intake from a domestic water supply--but they often exceeded the environmental limit recommended by the Federal Committee on Water Quality Criteria.

The tables show concentration percentages and their locations.

PRODUCTIVITY OF MAN-MADE LAKES

"Conference on the Ecological Aspects of International Development," by Julia McCaull, article, "Nature and Resources" (bull. of Int. Hydrological Dec.), Vol. 5, No. 2, June 1969, pp. 5-12.

The lack of mechanism for ensuring that the advance of technology brings desirable benefits, not disasters, has been strongly felt in many areas, especially in fisheries.

The biggest, and perhaps the most consequential, hydrological projects are those to control the great rivers of the world. The dangers of instituting such gigantic enterprises without adequate ecological planning is illustrated by the Kariba Dam on the Zambezi, and the high dam at Aswan. This article, a synopsis of conference papers, notes the adverse affects on fishing created by these dams.

Before the formation of Lake Kariba, government officials had predicted it would produce up to 20,000 tons of fish annually. The production did not materialize. In 1963, more than 2,000 fishermen took 4,000 short tons from the lake. In 1964, the yield was less than 2,100 tons and, by 1967, the lake supported only 500 fishermen. This drastic decline apparently was due to only partially understood ecological factors. Some of these are discussed in the article.

The Aswan Dam, which halted the flow of nutrients reaching the ocean, has destroyed the coastal sardine fishing industry. Five delta lakes fished commercially also appear less productive. Although Lake Nasser may produce catches exceeding those lost at the delta, a parallel is drawn between these expectations and the unfulfilled expectations at Lake Kariba.

Mr. McCaull also discusses the slow strangulation of Lake Valencia in Venezuela.

PUBLICATIONS

"Fishery Publications Index, 1955-64," Circular 296, Department of the Interior, Fish & Wildlife Service, May 1969. Sold by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, \$1.75.

This is a list of Fish & Wildlife Service fishery publications indexed by series, authors, and subjects. It includes popular, statistical, and scientific reports.

The following, published by the Fish & Wildlife Service, Department of the Interior, are available from Division of Publications, BCF, 1801 N. Moore Street, Arlington, Va. 22209:

PROCESSING

"Use of Sodium Tripolyphosphate to Control Fish Shrinkage during Hot-Smoking," by H. J. Barnett, R.W. Nelson, and J.A. Dassow, article, 'Fishery Industrial Research,' Vol. 5, No. 3, pp. 103-115, illus.

Moisture loss in hot-smoking (kippering) thawed halibut, salmon, and black cod results in economic loss as well as loss of quality. Because sodium tripolyphosphate effectively reduces loss of moisture in other foods, including fresh fish, it was tried with these smoked products and found effective in halibut and salmon.

The authors describe the procedures and results of their experiments and provide recommendations for industry trials.

SCALLOPS

"Explorations for Calico Scallop, *Pecten gibbus*, in the Area off Cape Kennedy, Florida, 1960-66," by Shelby B. Drummond, "Fishery Industrial Research," Vol. 5, No. 2, pp. 85-101.

Scallops, long have been considered a gourmet item in the U.S. Both bay and sea scallops are the basis of a thriving industry.

BCF exploratory vessels have discovered an immense, and little fished, bed of calico scallops off the east coast of Florida. The bed, in about 5 to 40 fathoms, covers 5,790 square miles, from about 11 miles south of Stuart, to about 6 miles north of St. Augustine. At the more favorable locations, the supply is adequate to support an almost year-round fishery. The area between Fort Pierce and the southeast shoal of Cape Kennedy was productive most consistently.

The bed is shown in 14 charts; catch rates are given for the entire grounds.

LEVELS OF RADIOACTIVITY IN SEAFOOD

"Consumption Trials and Edible Fractions of Various Commercially Important Species

of Fish and Shellfish," by C.J. Barker, article, in J. Cons. perm. int. Explor. Mer., Vol. 32, No. 1, July 1968, pp. 117-22.

Consumption survey data are used to assess maximum permissible discharge rates for aqueous radioactive effluent from nuclear installations. To monitor the levels present in seafood, it is necessary to know the consumption rates for persons in an area, and to convert this into edible fractions.

Consumption survey data are usually in the form of average and maximum numbers, or weight of fish consumed. The figures can be converted to edible material by data from the consumption trials. The relative percentage of edible material in raw whole un-gutted fish, or raw filleted fish, is determined.

Mr. Baker describes the methods, procedures, and results of trials on 11 different species.

--Barbara Lundy



WHAT IS BIOLUMINESCENCE?

Bioluminescence is light produced by living organisms, both animals and plants. In contrast to incandescent light, high temperatures are not necessary; oxygen, however, appears to be essential to the light-producing process.

Thousands of species of marine animals produce bioluminescence; most of them are animals of the lower orders. In addition to single-celled animals, various jellyfish and related animals produce displays. Among vertebrates, luminescence is found only in certain fishes and sharks.

Displays are seen most commonly in warm surface waters. Although most of the organisms are small, there are such immense numbers present that brilliant displays occur when the waters are disturbed by the passage of a ship at night.

Luminescent bacteria are present in sea water, but not in fresh water and can cause decaying fish to glow in the dark.

At ocean depths where light does not penetrate, there are strange-looking luminescent fishes. Beebe estimated that 96 percent of all the creatures brought up by nets were luminescent. There is controversy among biologists concerning the purpose of lights on marine animals. Some creatures have well-developed eyes but no light to enable them to see in the dark; others have brilliant light organs but are too blind to see. The property of luminescence is perhaps used as a defense against predators or as a means of hunting food or finding members of the opposite sex in the dark. ("Questions About The Oceans," U.S. Naval Oceanographic Office.)