



FISH CULTURE

"Directory of Fish Culture Institutions," FAO Fisheries Technical Paper No. 85, Food and Agriculture Organization of the United Nations, Rome, Italy.

This is a directory of private and governmental institutions engaged in fish culture research in 41 countries, including East and West Germany, Hungary, Israel, Japan, Poland, Netherlands, Taiwan, USSR, and U.S. Prepared by FAO's Department of Fisheries, it lists the location of the institutions, number of scientists employed, physical facilities, research programs, training facilities, and publications.

MACKEREL

"The Spanish Mackerel and King Mackerel Fisheries," by Charles H. Lyles, C.F.S. No. 4936, Department of the Interior, Fish & Wildlife Service, April 1969, 21 pp., illus. Available free from Branch of Reports, BCF, 1801 N. Moore St., Arlington, Va. 22209.

An oily, delicately flavored fish, the Spanish mackerel supports a commercial fishery that lands a yearly average of 8 million pounds worth about three-quarters of a million dollars. Landings fluctuate considerably, apparently influenced more by the market than by abundance. Full development of the fishery has been hindered by an inability to preserve the delicate, fresh flavor until the fish reaches the consumer.

Lyles reviews the history of the fishery since 1880, provides statistics, and gives several recipes. He emphasizes the urgent need to attack the problem of long-term preservation, a problem that must be solved in order to exploit this enormous, under-utilized resource.

OCEANOGRAPHERS

"The New World of the Oceans: Men and Oceanography," by Daniel Behrman, Little, Brown and Co., Boston, 1969, 436 pp., illus. \$8.95.

The mass media--newspapers, magazine, television, and radio--expend an enormous amount of time and effort telling us of the lives and works of men dedicated to outer space. But where can we go to learn of the lives and works of men dedicated to the study of inner space--the oceans? We can go to this book--an engaging, well-researched, and highly informative account of oceanographers and their science.

Claiming no special knowledge, Daniel Behrman is an ideal reporter. The reader learns along with him, and comes to share his infectious enthusiasm for his subject.

He decided early in his research that the most interesting forms of life in the sea were the men studying it. From Scripps Institution to Woods Hole, he met an unexpected force of biologists and economists, geologists and lawyers, fishermen and physicists. The variety of their research projects is astounding. Behrman, discovering the multifaceted world of oceanography, makes it both interesting and intelligible to the layman.

OCEANOGRAPHY

"Films on Oceanography," by R.P. Cuzco de Rest, National Oceanographic Data Center, 1969, 99 pp., \$1. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

This is a catalogue of 155 films on all aspects of oceanography--biology, chemistry, engineering, geology, and physics. It includes

brief description of each film--and data on its color, sound, running time, appropriate audience, sources, and cost. Many can be borrowed.

SALMON CONSERVATION

"The Pacific Salmon Fisheries: A Study in Conservation," by James A. Crutchfield and Giulio Pontecorvo, Johns Hopkins Press, 1969, 220 + xii pp., \$6.

As one of the most valuable North American fisheries, the Pacific salmon has an important economic influence. Beyond this importance, however, the industry itself is a good example of the general issues involved in fisheries management--biological yield, conservation, economics, the labor force, and industrial organization. The industry has suffered a chronic economic distress that can be attributed, only in part, to a decline in quantity of output.

James Crutchfield and Giulio Pontecorvo are economists. They have traced the history and analyzed the results of public management programs, particularly as applied to commercial fishing in Alaska and Puget Sound. They point out that public management has failed for the most part because the problems have been treated as strictly biological rather than economic. They offer an alternative program of public regulation based on both biologic and economic criteria. "Productive fish stocks are a necessary, but not a sufficient, condition of optimal use of these stocks," they say. The book makes a compelling case for a stronger economic approach to fishery management and conservation.

The authors also discuss fishing gear, geographic expansion of the fishery, the political environment, and biological constraints.

SALMON COMMISSION

"Annual Report 1968," International Pacific Salmon Fisheries Commission, New Westminster, Canada, 1969, 37 pp., illus.

This report includes a review of the Fraser River pink and sockeye salmon fisheries, their history, and the activities of the Commission during 1968. It includes the Commission's plans to restore and increase the value of the fisheries by raising the population beyond its original level.

SALMON IN ALASKA

"Alaska's Fishery Resources: The Pink Salmon," by Jack E. Bailey, Fishery Leaflet 619, Department of the Interior, Fish & Wildlife Service, 1969, 8 pp., illus. Available free from Division of Publications, BCF, 1801 N. Moore St., Arlington, Va. 22209.

Salmon fishing is the largest commodity industry in Alaska, and pink salmon is the most valuable species. The pink salmon, also called 'humpback,' is the most abundant Pacific salmon in Alaska. Its production has an average wholesale value of \$28 million and it constitutes more than half the total salmon catch.

Bailey describes the fish, its distribution, abundance, and natural history, and discusses fishery management.

SALMON MIGRATION

"Final Report on Migrant Salmon Light Guiding Studies at Columbia River Dams," by Paul E. Fields, North Pacific Corps of Engineers, Portland, Oregon, 1966, 266 + xvii, pp., illus.

Numerous dams have made nearly all of the Columbia River from tidewater to the Canadian border a series of pools. There are facilities to assist adult salmon migrating upstream at all but 2 of these dams, but facilities for young downstream migrants are limited.

The mortality percentages of fingerling and yearling salmonids demand that some method be found to guide them around the dangerous areas in relatively small amounts of water. When this study was initiated, the only generally accepted method of guidance was a mechanical screen. This is not practical in large rivers. The study showed that light is an effective guiding stimulus, both under laboratory conditions and in field-validation experiments.

SALT FISH

"Improved Method for Producing Pindang," by Sofjan Iljas and Louis J. Ronsivalli, "Fishery Industrial Research," pp. 11-16, Department of the Interior, Fish & Wildlife Service, 1969.

Boiled salt fish, 'pindang,' is a popular food in Indonesia and Southeast Asia. It is known as 'sinaeng' in the Philippines and 'platunung' in Thailand. To produce pindang, alternate layers of eviscerated fish and salt are placed on a rack and held above boiling water in earthenware or tin containers. The containers are covered and the fish steamed for about 8 hours. Pindang can be held for 1 to 12 weeks depending on the concentration of salt.

This paper describes an improved method of production using plastic pouches. With this method, the fish can be stored at room temperature for up to 3 months. The pouches eliminate sanitation problems, double the rate of production, and minimize losses during storage.

SPINY LOBSTER

"The New Zealand Rock Lobster or Marine Spiny Crayfish, *Jasus edwardsii* (Hutton)-- Distribution, Growth, Embryology and Development," by J. H. Sorenson, Fisheries Technical Report No. 29, New Zealand Marine Department, Wellington, 1969, 46 pp., illus.

Crayfish, or rock lobster, has become the most valuable single species in New Zealand's fishing industry. This is due mostly to a strong demand for frozen tails in the U.S. After reaching a peak in 1956, landings declined in volume and in size of individual fish. Later, huge unfished stocks were discovered off Chatham Islands, and a new record of 159,102 cwt., worth NZ\$4,319,908, was reached in 1967.

A fishery of this magnitude and value must be wisely managed to achieve a balance between natural increase and exploitation. The protection of females carrying external eggs

is essential. This report describes and illustrates a technique to determine whether unlawful egg-removal has taken place. It includes the life history and biology of the species, and discusses initial steps taken towards laboratory rearing and 'farming.'

"The New Zealand Crayfish, *Jasus edwardsii* (Hutton)," by R. J. Street, Fisheries Technical Report No. 30, New Zealand Marine Department, Dunedin, 1969, 53 pp., illus.

This is an account of the growth, moulting cycle, movements, reproduction, and predators of the New Zealand crayfish.

TECHNOLOGY

"The Automation of Fish Processing and Handling - A Bibliography," by Garland L. Standrod, Department of the Interior, 1968, 37 pp. Available from Clearinghouse, Springfield, Va. 22151.

This is a selected list of 312 reports and articles, some in foreign languages, covering all aspects of automated fish processing and handling.

U.S. FISHERIES

"Fisheries of the United States. . . 1968" by Charles H. Lyles, C.F.S. No. 5000, Department of the Interior, Fish & Wildlife Service, March 1969, 83 + xx pp. Available from Division of Publications, BCF, 1801 Moore St., Arlington, Va. 22209.

A complete review and analysis of U.S. catch, landings and value, imports and exports, production and supplies, by species, region, and type of product. It includes sections on prices, per capita consumption, and numerous statistics.

--Barbara Lundy

