



RECENT FISHERY PUBLICATIONS

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

- CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
 FL - FISHERY LEAFLETS.
 SSR.-FISH.-SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).
 SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number	Title
CFS-1944	- Frozen Fish Report, November 1958, 8 pp.
CFS-1946	- North Carolina Landings, November 1958, 3 pp.
CFS-1950	- Frozen Fish Report, December 1958, 8 pp.
CFS-1951	- Fish Meal and Oil, November 1958, 2 pp.
CFS-1953	- Mississippi Landings, October 1958, 2 pp.
CFS-1957	- Texas Landings, October 1958, 3 pp.
CFS-1958	- Maine Landings, November 1958, 3 pp.
CFS-1960	- Florida Landings, November 1958, 7 pp.
CFS-1963	- Massachusetts Landings, September 1958, 5 pp.
CFS-1964	- Alabama Landings, October 1958, 2 pp.
CFS-1965	- New Jersey Landings, November 1958, 3 pp.
CFS-1967	- South Carolina Landings, December 1958, 2 pp.
CFS-1980	- Florida Landings, December 1958, 7 pp.
CFS-1981	- Manufactured Fishery Products, 1957 Annual Summary, 7 pp.
CFS-1984	- Fisheries of the United States and Alaska, 1957 Annual Summary, 13 pp.
FL-9	- Available Leaflets on Fisheries--1958, 16 pp., revised November 1958.
FL-476c	- Canned Fish Retail Prices, December 1958, 27 pp.

SSR-Fish. No. 260 - Nutritive Value of Pollock Fish Scales as Determined by Rat Feeding Tests, by Donald G. Snyder and Hugh W. Nilson, 17 pp., illus., 1958.

SSR-Fish. No. 277 - Survey of the United States Shrimp Industry, Volume I, 322 pp., illus., November 1958. This report published in two volumes provides a comprehensive examination of the shrimping grounds, vessel construction,

fishing operations, fishing costs, processing plant efficiency, processing costs, trends in distribution, packaging, storing, shipping, per capita consumption, prices, wholesaling, retailing, merchandising, and consumer preferences. Volume I contains the first five chapters which deal with production and processing. Volume II contains the last four chapters, three of which deal with marketing. The last chapter contains a summary of conclusions and recommendations, which finds that the shrimp industry's welfare can be safeguarded best (1) by increasing the efficiency of operations at all levels and thus effecting cost savings in shrimp production, processing and distribution and (2) by stabilizing markets. Specific suggestions to improve current practices are made throughout. For example, the chapter on processing contains the results of engineering surveys which provide plans for model layouts for freezing and bread-ing plants and canneries. An economic analysis is made of the problems of marketing and price stability.

SSR-Fish. No. 280 - Applications of Salt in Electro-fishing, by Robert E. Lennon and Phillip S. Parker, 16 pp., illus., November 1958.

SSR-Fish. No. 281 - Water Soluble Vitamin Requirements of Silver Salmon, by John A. Coates and John E. Halver, 14 pp., November 1958.

Sep. No. 542 - Ascorbic Acid as an Antioxidant for Frozen Oysters and Effect of Copper-Chelating Ability of Oyster Tissue on Ascorbic Acid Oxidation.

Sep. No. 543 - King Crab, Shrimp, and Bottom Fish Explorations from Shumagin Islands to Unalaska, Alaska - Summer and Fall, 1957.

Sep. No. 544 - Research in Service Laboratories (March 1959): Technical Note No. 51 - Use of Corn-Sirup Solids in Packaging and Freezing Fish.

THE FOLLOWING SERVICE PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

Annual Report of the U. S. Fish and Wildlife Service, Bureau of Commercial Fisheries, Bureau of Sport Fisheries and Wildlife, for the Fiscal Year 1957, 32 pp., illus., printed. (Reprinted from the Annual Report of the Secretary of the Interior, for the Fiscal Year ended June 30, 1957.) Summarizes the various activities of the Service. Specifically discusses the commercial fisheries (describes the activities of the Bureau of Commercial Fisheries); research in fishery biology (coastal, inland, and marine

fisheries); conservation of Alaska commercial fisheries; Pribilof Islands fur-seal industry; foreign activities; maintenance of inland fisheries; Federal aid to the states for the restoration of fish and wildlife; and river basin studies. Other activities of the Bureau of Sport Fisheries and Wildlife are also included.

California Fishery Products Monthly Summary, December 1958, 16 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish and sardines; pack of canned tuna, mackerel, anchovies, and sardines; market fish receipts at San Pedro, Santa Monica, San Diego, and Eureka areas; California imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; American Tuna Boat Association auction sales; for the month indicated.

(Chicago) Monthly Summary of Chicago's Fresh and Frozen Fishery Products Receipts and Wholesale Market Prices, December 1958, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and wholesale prices for fresh and frozen fishery products; for the month indicated. Also reviews 1958 trends.

Fish in the Sodium-Restricted Diet, by Kathryn L. Osterhaug, 2 pp., printed. (Reprinted from Pacific Fisherman, October 1958.) Fishery Technological Laboratory, Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, Seattle, Wash.

(Gulf) Brokers and Importers of Fishery Products, New Orleans, La., 1958, 3 pp. (Market News Service, U. S. Fish and Wildlife Service, 609-611 Federal Bldg., New Orleans 12, La.)

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, January 1959, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 So. King St., Hampton, Va.) Fishery landings and production for the Virginia areas of Hampton Roads, Lower Northern Neck, and Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data; for the month indicated.

New England Brokers and Importers of Fishery Products, 1959, 6 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.)

(New York) Brokers and Importers of Fishery Products, New York City, 1959, 8 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York 38, N. Y.)

(Seattle) Washington, Oregon, and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, January 1959, 6 pp. (Market News Service, U. S. Fish and Wildlife Service, Pier 42 South, Seattle 4, Wash.) Includes landings and local re-

ceipts, with ex-vessel and wholesale prices in some instances, as reported by Seattle and Astoria (Ore.) wholesale dealers; also Northwest Pacific halibut landings; and Washington shrimp landings; for the month indicated.

Study of the Fishing Condition of the Yellowfin in the Indian Ocean, Especially on the Annual Differences of the Hooked-Rate and Size Composition, by Koya Mimura, Contribution No. 103, 22 pp., illus., processed. (Translation of Report No. 7 of Nankai Regional Fisheries Research Laboratory, pp. 59-71, February 1958.) Pacific Oceanic Fishery Investigations, Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, Box 3830, Honolulu, Hawaii.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Annotated Bibliography on the Cutthroat Trout, by Oliver B. Cope, Fishery Bulletin 140 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 417-442, printed, 30 cents, 1958.

Atlantic Coast Migrations of American Shad, by Gerald B. Talbot and James E. Sykes, Fishery Bulletin 142 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 473-490, illus., printed, 15 cents, 1958.

Development and Distribution of VINCIGUERRIA LUCETIA and Related Species in the Eastern Pacific, by Elbert H. Ahlstrom and Robert C. Counts, Fishery Bulletin 139 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 363-416, illus., printed, 40 cents, 1958.

Distribution, Abundance, and Habits of Pelagic Sharks in the Central Pacific Ocean, by Donald W. Strasburg, Fishery Bulletin 138 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 335-361, illus., printed, 25 cents, 1958.

Effect of New Jersey-New York Pound-Net Catches on Shad Runs of Hudson and Connecticut Rivers, by Paul R. Nichols, Fishery Bulletin 143 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 491-500, illus., printed, 15 cents, 1958.

Larval Development, Growth, and Spawning of Striped Mullet (MUGIL CEPHALUS) Along the South Atlantic Coast of the United States, by William W. Anderson, Fishery Bulletin 144 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 501-519, illus., printed, 25 cents, 1958.

Living and Ancient Populations of the Clam GEMMA GEMMA in a Maine Coast Tidal Flat, by W. H. Bradley and Peter Cooke, Fishery Bulletin 137 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 305-334, illus., printed, 35 cents, 1958.

"Modifications on an Alternate-Polarity Electrode," by Robert A. Jones, article, The Progressive Fish Culturist, vol. 21, no. 1, January 1959, pp. 39-42, illus., processed, single copy 25 cents. Describes modifications of the basic design

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of an alternate-polarity electrode used to sample fish populations in Connecticut's coastal streams.

Surface Circulation in the Gulf of Maine as Deduced from Bottles, by C. Godfrey Day, Fishery Bulletin 141 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 58), pp. 443-472, illus., printed, 30 cents, 1958.

"Survival and Retention of Tags, and Growth of Tagged Lake Trout in a Rearing Pond," by Paul H. Eschmeyer, article, The Progressive Fish Culturist, vol. 21, no. 1, January 1959, pp. 17-21, processed, single copy 25 cents. Part of a study that has to do with marking experiments in Lake Superior to determine the proper size of lake trout at planting and whether survival or growth may be increased by holding lake trout in rearing stations beyond their first summer.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATION OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

BAIT FISH:

"Bait Fish Production in New York Ponds," by John L. Forney, article, New York Fish and Game Journal, vol. 4, no. 2, July 1957, pp. 150-194, printed. New York Conservation Dept., Albany 1, N. Y.

"Raising Bait Fish and Crayfish in New York Ponds," by John L. Forney, article, Cornell Extension Bulletin No. 986, pp. 1-30, printed. New York State College of Agriculture, Cornell University, Ithaca, N. Y., 1957.

BRAZIL:

Pesca (Fish), 20 pp., processed in Portuguese. Ministerio da Agricultura, Servico de Estatistica da Producao, Rio de Janeiro, Brazil, November 1958. Presents statistics on landings and production of fishery products for 1955-57.

CANADA:

Annual Report of the Department of Natural Resources of the Province of Saskatchewan for the Fiscal Year Ended March 31, 1958, 142 pp., illus., printed. Department of Natural Resources, Province of Saskatchewan, Regina, Saskatchewan, Canada, 1958. A compilation of reports of the branches of the Saskatchewan Department of Natural Resources, including an 18-page report of the Fisheries Branch. The fisheries report covers activities in management, research, fish culture, and administration for commercial and sport fisheries. Statistical data are also given on fish production and value.

Annual Report of the Fisheries Research Board of Canada, 1957-1958 (For the Fiscal Year Ended March 31, 1958), 195 pp., illus., printed. Fisheries Research Board of Canada, Ottawa, Canada. Reports on the activities of the biological and technological stations of the Fisheries Research Board of Canada--an organization in charge of advisory, consultative, and administrative functions of fishery research stations and investigations of practical and economic problems connected with the fisheries of Canada. Contains a brief summary of the Board's work and progress made during 1957-1958. Details of the investigations by the Board's various research stations are given in individual reports.

The Canadian Fish Culturist, Issue 23, December 1958, 49 pp., illus., printed. Information and Educational Service, Department of Fisheries, Ottawa, Canada. Contains the following papers: "Observations on the Spawning of Lake Trout, *Salvelinus namaycush*, and the Post-Spawning Movement of Adult Trout in Lake Simcoe," by H. R. McCrimmon; "The Survival of Yearling Lake Trout Planted in South Bay, Lake Huron," by F. E. J. Fry and J. C. Budd; "Notes on the Food of the Young of Three Species of Pacific Salmon in the Sea," by Murvel E. Annan; "A Direct-Current Electrofishing Apparatus Using Separate Excitation," by A. R. Murray; "Back-Pack Fish Shocker," by A. A. Blair; and "Experiments with Toxaphene as a Fish Poison," by George E. Stringer and Robert G. McMynn.

Progress Reports of the Atlantic Coast Stations, no. 70, 36 pp., illus., printed in French and English. Queen's Printer and Controller of Stationery, Ottawa, Canada, September 1958. Contains the following articles: "Distribution of the Inshore Catch of Cod in Newfoundland and Labrador Waters in the Years 1947 to 1949," by W. Templeman; "Herring Tagging in the Bay of Fundy (June to August, 1957)," by R. A. McKenzie and S. N. Tibbo; "Survival and Utilization of Atlantic Salmon of the Little Codroy River, Newfoundland," by A. R. Murray; "A Simple Method of Checking on the Sources of Fillet Contamination in Fish Plants," by C. H. Castell; "Grand Bank Tagged Dogfish Moves to Iceland," by W. Templeman; and "Recent Trends in the Scallop Fishery of Eastern Canada," by L. M. Dickie.

Progress Reports of the Pacific Coast Stations, no. 112, 23 pp., illus., printed. Fisheries Research Board of Canada, Ottawa, Canada, December 1958. Among the articles included are: "Application of Refrigerated Sea Water Fish Holding to a Small Combination Fishing Vessel," by S. W. Roach and J. S. M. Harrison; "Effect of Chlortetracycline (CTC) Antibiotic on the Keeping Quality of Lingcod Stored in Refrigerated Sea Water," by B. A. Southcott, E. G. Baker, and H. L. A. Tarr; "Food of the Northern Sea Lion," by Gordon C. Pike; and "Distribution of Chlortetracycline (CTC) Antibiotic in Ice Made from Hard Waters," by R. H. Moyer, B. A. Southcott, and H. L. A. Tarr.

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Specification for Fish: Fresh, Frozen and Prepared, 32-GP-141a, October 17, 1958 (Supersedes 32-GP-141, November 3, 1955), 11 pp., processed, 25 Canadian cents. This specification applies to fresh, frozen, and prepared fish, suitable for human consumption, which may be iced, scaled, dressed, filleted, steaked, portioned, batter-coated, breaded or cooked and which are preserved by icing or freezing. Canadian Government Specifications Board, National Research Council, Ottawa 2, Canada.

CEYLON:

A Guide to the Fisheries of Ceylon, Bulletin No. 8, 74 pp., illus., printed in English. Department of Fisheries, Colombo, Ceylon, 1958. This report was written primarily to serve as a handbook to the Indo-Pacific Fisheries Council at its sessions in Colombo during December 1958. It presents an outline of the fishing industry as found in Ceylon today, in nontechnical language so that it may also be understood by laymen. The report covers sections on resources, fishing methods, utilization of catch, and administration. It also contains 3 maps of the area, a number of good photographic illustrations, and a bibliography of papers on the fisheries of Ceylon.

COMMISSIONS:

Gulf States Marine Fisheries Commission Ninth Annual Report 1957-1958 (to the Congress of the United States and to the Governors and Legislators of Alabama, Florida, Louisiana, Mississippi, and Texas), 36 pp., illus., printed, for limited distribution. Gulf States Marine Fisheries Commission, 312 Audubon Bldg., New Orleans 16, La. Contains the Commission's activities for the period October 1957-1958, with a summary of some of the points of general interest in the compact between the States of Alabama, Florida, Louisiana, Mississippi, and Texas. This report briefly enumerates and summarizes the activities and accomplishments of those agencies with which the organization is directly associated. Also included are short discussions of the U. S. Fish and Wildlife Service activities in technological and biological research, exploratory fishing in the Gulf area, and the Gulf fishery statistical and Market News program. A financial report of the Commission is included.

CONSERVATION:

Illinois Fish Conservation Teacher's Manual, by Alvin C. Lopinot, 71 pp., illus., printed. Division of Fisheries, Department of Conservation, Springfield, Ill., 1958. According to the author, "Fish conservation in Illinois has evolved from strict regulations and the rearing and stocking of fish into a complex management program with one simple purpose--to provide more and better fishing." This manual is devoted to an understanding of the problems basic to the survival of this resource which is so important as a source of food and as a means of providing recreation. Included are chapters on the history of fish conservation in Illinois, limnology, fishery biology, and some common fish of Illinois. Also includes chapters on bait minnow

propagation, lake construction, fisheries management, pollution, commercial and sport fishing, and waters in Illinois.

DEPARTMENT OF THE INTERIOR:

1958 Annual Report of the Secretary of the Interior (For the Fiscal Year Ended June 30, 1958), 447 pp., illus., printed, US\$1.50 (paper). U. S. Department of the Interior, Washington, D. C. (For sale by the Superintendent of Documents, Washington 25, D. C.) The activities of the Department's bureaus and offices, including the United States Fish and Wildlife Service, are summarized in this report. Among others, the activities of the Bureau of Commercial Fisheries are described. Specifically discussed are utilization of the commercial fishery resources; research in fishery biology (coastal, inland, and marine fisheries); conservation of Alaska commercial fisheries; Pribilof Islands fur-seal industry; and foreign activities. Summaries are also included of the various activities of the Bureau of Sport Fisheries and Wildlife.

DIRECTORIES:

The Conservation Directory (A Listing of Organizations and Officials Concerned with the Protection of Wildlife and Other Natural Resources), compiled by Steward M. Brandborg and James S. Pacy, 116 pp., printed, 50 cents. National Wildlife Federation, 232 Carroll St., NW., Washington 12, D. C. July 1, 1958. This directory is an annual publication of the National Wildlife Federation. The public agencies of national, state, and territorial governments of the United States, as well as those of neighboring nations in North and South America, are listed. Most of the nongovernment organizations in the United States which have a national or statewide scope of interest are also included.

ELECTRICAL FISHING:

"The Control of the Upstream Movement of Fish With Pulsated Direct Current," by Alberton L. McLain, paper, Transactions of the American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 269-284, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

FISH DISTRIBUTION:

The Preferred Temperature of Fish and Their Midsummer Distribution in Temperate Lakes and Streams, by R. G. Ferguson, 18 pp., illus., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 15, no. 4, 1958, pp. 607-624.) Ontario Department of Lands and Forests, Division of Research, Maple, Ontario, Canada.

FISH FARMING:

Fisheries (Fish Farming, Fisheries Management), 180 pp., illus., printed. Washington State Department of Fisheries, 4015 - 20th Ave. West, Seattle 99, Wash. This review of farming, management, and international aspects of fishes is made up of the following papers: "History of Fish Farming," "Oyster Farming," "Clam Farming," "Fertilization of Water," "Hybrid Stock and Selective Breeding," "Pollution Control," and "Predator Control," by Ken McLeod;

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"Farming for Fishes" and "Ocean Pasturage" (reprinted from The Sun, The Sea, and Tomorrow); "Salmon of the Northwest and Some of the Factors Influencing their Abundance," by Clarence Pautzke; "Hatchery and Fish Farm Relationships," by C. H. Ellis, Richard T. Pressey, and Wendell Smith; "Progress in Fish Disease Control," by Brian Earp; and "International Fisheries," "Fisheries Management," and "Expectancy of Salmon," by Milo Moore.

FISH LADDERS:

"Fish Trap on the Trinity," article, Outdoor California, vol. 19, no. 11, November 1958, pp. 4-5, illus., printed. California Department of Fish and Game, 722 Capitol Ave., Sacramento, Calif. This article describes how fish do most of the work in a unique, newly completed "Rube Goldberg" fish-trapping facility on the Trinity River near Lewiston. This installation is a temporary means of preserving the important salmon and steelhead runs in the Trinity River system while construction of the high Trinity Dam is in progress. Something had to be done to detour the fish around the entire construction area. The answer was a novel type of fish-trapping facility, a system so simple that one man, during a moderate run of fish, can load upward of 100 salmon by himself. The facility is a departure from any other system in existence and is expected to attract attention from other western states, Canadian provinces, and other countries having anadromous fish runs.

FISH MEASUREMENT:

"The Use of Sedatives to Reduce Manipulative Error in Measuring Fish," by Wilbur L. Hartman, article, New York Fish and Game Journal, vol. 5, no. 1, January 1958, pp. 1-8, printed. New York Conservation Department, Albany 1, N. Y.

FISH POPULATIONS:

"Recent Changes in the Deep-Water Fish Populations of Lake Michigan," by James W. Moffett, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 393-408, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

FISH WAYS AND FISH PROTECTION DEVICES:

"A Simplified Rotary Fish Screen and an Automatic Water Gate," by Marvin J. Whalls, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 371-380, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

FISHERIES:

"How the U. S. Fisheries are Faring," by W. Adair Stewart, article, Foreign Trade, vol. 111, no. 3, January 31, 1959, pp. 4-6, printed, single copy 20 Canadian cents. Department of Trade and Commerce, Ottawa, Canada. According to the author, "The United States buys more fish abroad than any other country, because its fishermen cannot land enough to meet rising demand. This decline in the domestic catch favors Canada,

which continues to be the leading source of U. S. imports." The author discusses the decline in food-fish landings for 1957 as compared with 1956, the reasons for the decline in the domestic catch, and how the United States in 1957 was again the world's leading importer of fishery products.

FOOD AND AGRICULTURE ORGANIZATION:

Bacterial Fish Spoilage and Its Control, by Ernest Hess, FAO Fisheries Paper No. 4, 11 pp., processed (limited distribution). (Reprinted from Food Technology, vol. IV, no. 12, 1950, pp. 477-480.) Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, May 1955.

Economic Influence on Design of Fishing Craft, by C. Beever, FAO Fisheries Paper No. 3, 8 pp., processed (limited distribution). (Reproduced from Fishing Boats of the World.) Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, April 1955.

The Food Technologist and the World Food Crisis, by Mogens Jul, FAO Fisheries Paper No. 5, 10 pp., processed (limited distribution). (Reprinted from Food Technology, vol. 3, no. 9, 1949, pp. 279-283.) Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, May 1955.

The Problem of the Introduction of Foreign Species into Inland Waters--Both Natural and Cultivated Species, by John Drake, FAO Fisheries Paper No. 2, 13 pp., processed (limited distribution). Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, March 1955.

FRANCE:

NECROBIA RUFICOLLIS (F.) et NECROBIA RUFIPES (de Geer) Coleopteres Parasites des Produits de la Peche Sales et Secs (Necrobia ruficollis (F.) and Necrobia rufipes (de Geer), Parasitic Coleoptera of Salted Fishery Products), by V. H. Bertullo, C. Herrera, and B. E. Rodriguez Rivas, 7 pp., illus., printed in French with brief summary in English. (Reprinted from Recueil de Medecine Veterinaire, no. 3, March 1958.) Vigot Freres, Editeurs de l'Academie Veterinaire de France, 23 Rue de l'Ecole de Medecine, Paris, France.

Problemes de la Peche en Mediterranee Occidentale (West Mediterranean Fishery Problems), by F. Doumenge, 17 pp., illus., printed in French. (Reprinted from Bulletin de L'Association de Geographes Francais, June 1958.) L'Association de Geographes Francais, Montpellier, France.

Les Produits de la Mer de la Region Mediterranee Francaise Devant L'Entree en Vigueur du Marche Commun (Marine Products of France's Mediterranean Area in Relation to the Activation of the (European) Common Market), by F. Doumenge, 12 pp., printed in French. (Reprinted from Bulletin du Centre Regional de la

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Productivite et des Etudes Economiques, Third Quarter, 1958.) Centre Regional de la Productivite et des Etudes Economiques, Montpellier, France.

FREEZING:

Freezing of Fish for Canning, article, Industria Conservera, vol. 24, no. 225, March 1958, p. 66, printed in Spanish. Industria Conservera, Calle Marques de Valladares, 41, Vigo, Spain. Details are given on the process of freezing fish for canning--the time between fishing and freezing, the kind of pretreatments, and the temperature to be maintained.

FRENCH WEST AFRICA:

"Les Peches en A. O. F." (French West Africa's Fisheries), article, France Peche, no. 24, December 1958, pp. 13-23, illus., printed. France Peche, Tour Sud-Est, Rue de Guemene, Lorient, France.

FROZEN FOODS:

"Study Finds Frozen Precooked Crab Cakes' Heating Directions, Inadequate as Stated," by Melvin A. Benarde, article, Quick Frozen Foods, vol. XXI, no. 6, January 1959, pp. 43-44, illus., printed. The results of a study by the University of Maryland, in which the researchers determined heat penetration into commercially-prepared precooked frozen crab cakes. Several varieties of frozen crab cakes were obtained from retail stores. Since many housewives often save additional minutes in preparing precooked frozen items by placing them in cold ovens, and then bringing to suggested temperature, the samples were split--one half placed in an oven preheated according to label instructions and the second half in a cold oven. The packers' directions for home heating of precooked frozen crab cakes were found to provide inadequate heating.

GENERAL:

Climatic Temperature Changes and Commercial Yields of Some Marine Fisheries, by F. Heward Bell and Alonzo T. Pruter, 59 pp., illus., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 15, no. 4, pp. 625-683, 1958.) International Pacific Halibut Commission, Seattle, Wash. The objective of this paper is to examine the basis for some of the hypotheses that have been presented concerning the effects of climatic temperature changes upon the yields of certain fisheries.

Cut Corners with Conveyors, by Morris Asimow and I. L. M. Bosticco, Technical Aid 63, 8 pp., illus., printed. Small Business Administration, Washington 25, D. C., September 1958.

"The Optimum Level of Fisheries Exploitation," by Harold C. Frick, article, Journal of the Fisheries Research Board of Canada, vol. 14, no. 5, September 1957, pp. 683-686, printed. Fisheries Research Board of Canada, Ottawa, Ontario, Canada.

"Safety in the Fishing Industry," article, New England Business Review, October 1958, pp.

1-4, illus., printed. Federal Reserve Bank of Boston, Boston, Mass. A brief article on the New England fishing industry and its problems, the hazards and accidents in the fishing industry, and safety proposals.

Strengthening American Science (A Report of the President's Science Advisory Committee), 36 pp., printed, 20 cents. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) More than a year ago an effort was made to underwrite the strength of American science and technology as one of our essential resources for national security and welfare. At that time the Science Advisory Committee was asked to make a study of ways in which the Federal Government could best serve this objective. The Committee's report specifically recommends the establishment of a new Federal Council for Science and Technology, a body to promote closer cooperation among Federal agencies in planning their programs in science and technology. The Committee concludes in its report that the task of further strengthening United States science is so broad that Government, industry, university, foundations, and individuals all have essential roles to play.

GERMAN FEDERAL REPUBLIC:

Jahresbericht uber die Deutsche Fischerei, 1957 (Yearbook of the German Fisheries, 1957), 282 pp., illus., printed in German with summaries in English. Verlag Gebr. Mann, Berlin, Germany, October 1958. A review covering all phases of the German fisheries for 1957. Each chapter is followed by a summary in English and all statistical tabulations have English sub-captions.

GREAT LAKES:

"Artificial Propagation in the Management of Great Lakes Fisheries," by J. R. Dymond, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 384-392, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

"Current Fisheries Research by Canadians on the Great Lakes," by W. A. Kennedy, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 419-423, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

"Origin and Dispersal of the Alewife, Alosa pseudoharengus, and the Gizzard Shad, Dorosoma cepedianum, in the Great Lakes," by Robert Rush Miller, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 97-111, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

"The Role of the Great Lakes Fishery Commission in the Solution of Great Lakes Problems," by John L. Farley, paper, Transactions of The American Fisheries Society Eighty-Sixth An-

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

nual Meeting, 1956, pp. 424-429, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

GULF OF MEXICO:

The Fishes of Mobile Bay and the Gulf Coast of Alabama, by Herbert T. Boschung, 626 pp., printed. Department of Biology, University of Alabama, Tuscaloosa, Ala., 1957.

HICKORY SHAD:

The Hickory Shad Unmasked, by Romeo Mansueti, 4 pp., illus., printed. (Reprinted from Nature Magazine, vol. 51, no. 7, August-September 1958, pp. 351-354, 386.) Maryland Department of Research and Education, Chesapeake Biological Laboratory, Solomons, Md.

INSPECTION:

Controlling Inspection Costs in Small Plants, by Robert E. Heiland, Management Aid 96, 4 pp., printed. Small Business Administration, Washington 25, D. C., July 1958.

INSTRUMENTS:

A Device for Observing Bottom Currents, by Dr. J. N. Carruthers, article, 3 pp., illus., printed. (Reprinted from Fishing News, no. 2362, July 25, 1958, pp. 6-7.) Arthur J. Heighway Publications Ltd., 110 Fleet St., London, E. C. 4, England. The author believes "that various instruments developed by oceanographers could, in their simplest forms, be of practical use to commercial fishermen. Seine net fishermen have been heard to say that they would like to know for certain how 'the tide is running' on the bottom when the time for hauling comes." This article describes a simple and inexpensive device which can easily and quickly tell the speed and direction of the bottom current as long as the water depth does not exceed 70 fathoms. The device does not require the ship to be anchored, nor does it require good weather.

ISRAEL:

"Biological Data on *Tilapia galilaea* and *Tilapia nilotica* in the Fish Ponds," by A. Yashouv, article, Bamidgeh, Bulletin of Fish Culture in Israel, vol. 10, no. 3, November 1958, pp. 47-52, illus., printed in English and Hebrew. Fish Culture Research Station, Dor, Israel.

Fishermen's Bulletin, no. 18, December 1958, 30 pp., illus., printed in Hebrew. Ministry of Agriculture, Division of Fisheries, P. O. B. 699, Haifa, Israel. Contains, among others, the following articles: "Around the Fisheries of Israel," by M. Shavit; "The Sea Fisheries of India," by R. Rupp; "Experiments with the Danish Trawl Net on Board of R/F/V 'Hazvi'," by D. Bernstein; "Trawl Nets from Japanese Synthetic Fibers;" "Trawl Nets Made of Webbing Produced in Israel;" "On the Otter Board Action Problem;" and "Note on the Construction of Trawl Nets Made from Machine Made Webbing."

"On the Possibility of Mixed Cultivation of Various *Tilapia* with Carp," by A. Yashouv, article,

Bamidgeh, Bulletin of Fish Culture in Israel, vol. 10, no. 2, June 1958, pp. 21-29, illus., printed in English and Hebrew. Fish Culture Research Station, Dor, Israel.

JAPAN:

"Les Methodes de Peche au Japon" (The Methods of Fishing in Japan), article, La Peche Maritime, vol. 38, no. 970, January 1959, pp. 33-37, illus., printed. La Peche Maritime, 190 Boulevard Haussman, Paris, France.

Technical Report of Fishing Boat, No. 12, 164 pp., illus., printed in Japanese with brief English abstracts. Fishing Boat Laboratory, Production Division, Ministry of Agriculture and Forestry, Tokyo, Japan, October 1958. Contains, among others, the following reports: "Model Test of European Wooden Trawler," by Nobutate Yokoyama and Tsutomu Kobayashi; "Some Report on a Two-Boat-Trawler Operating on the East China Sea from the Naval Architectural Point of View," by Tsutomu Tsuchiya; "Smaller Type Sensitive Net-Height Self-Recorder, Self-Recording Tensionmeter for Head and Ground Ropes, Net-Against-Water Speedmeter, and the Experimental Results of these Instruments on Two-Boat-Trawl Net and the Otter Trawl Net," by Chikamasa Hamuro and Kenji Ishii; "Study on the Self-Recording Net Depth Meter, the Echo-Sounding Machine for the Set Net and Results Thereof," by Chikamasa Hamuro, Kenji Ishii and Katsuji Honda; "Noise of Creatures in Sea in Region of Ultrasound," by Tomiju Hashimoto and Yoshinobu Maniwa; "Study on Fish-Finder for Ground Fish on the East China Sea," by Minoru Nishimura; "Detection of King Crab by Fish Finder," by Tomiju Hashimoto and Minoru Nishimura; and "Comparison Between Survey Map by 14.5 kc Fish-Finder and that by 200 kc Fish-Finder with Sharp Beam on Same Sea," by Tomiju Hashimoto and Yoshinobu Maniwa.

LAKE TROUT:

"The Near Extinction of Lake Trout in Lake Michigan," by Paul H. Eschmeyer, paper, Transactions of The American Fisheries Society Eighty-Fifth Annual Meeting, 1955, pp. 102-119, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

Studies on River-Spawning Populations of Lake Trout in Eastern Lake Superior, by K. H. Loftus, 19 pp., illus., printed. (Reprinted from Transactions of the American Fisheries Society, vol. 87, 1957.) Fish and Wildlife Division, Ontario Department of Lands and Forests, Sault Ste. Marie, Ontario, Canada, 1958.

LIMNOLOGY:

"Limnological Surveys of the Great Lakes--Early and Recent," by Stanford H. Smith, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 409-418, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

MACKEREL:

"Biology of the Atlantic Mackerel (*Scomber scombrus*) of North America. Part I--Early Life History. Part II--Migrations and Habits," by Oscar Elton Sette, article, Dissertation Abstracts, vol. 17, no. 11, p. 2718, printed. University Microfilms, University of Michigan, Ann Arbor, Mich.

MARYLAND:

Maryland Commercial Fisheries Statistics, 1957, Chesapeake Bay and Tributaries, Ref. No. 58-57, 2 pp., processed. Maryland Department of Research and Education, Chesapeake Biological Laboratory, Solomons, Md., December 1958. The quantity and value of fish landings in the Chesapeake Bay and tributaries by species, and the total landings by species and gear.

NEW YORK:

"Small Marine Fishes of New York. Part I - The Forage Fishes," by Alfred Perlmutter, article, The New York State Conservationist, vol. 13, no. 2, October-November 1958, pp. 23-26, 36, illus., printed, single copy 50 cents. New York State Conservation Department, State Campus, Albany, N. Y. This is the first of a series of articles describing the more important species of the small marine fish. Illustrations are also included of several species which are important as forage fish--food for other fish.

NETHERLANDS:

Annual Report of the Netherlands Whaling Company, 1957/58, 15 pp., illus., printed in Dutch. Nederlandse Maatschappij Voor de Walvisvaart, Amsterdam, Netherlands.

NORWAY:

"Rapport om Tokt med G. O. Sars til Nord-Norge, Barentshavet og Gronlandshavet 1. Mars til 5. Mai 1958" (Report on the Trip of the G. O. Sars to North-Norway, Barents Sea and Greenland Sea from March 1 to May 5, 1958), by L. Miditun and G. Saetersdal, article, Fiskets Gang, vol. 44, no. 31, July 31, 1958, pp. 408-412, illus., printed. Fiskets Gang, Postgiro Nr. 691 81, Bergen, Norway.

"Rapport om Tokt med Johan Hjort til Barentshavet Juli 1958" (Report on the Trip of the Johan Hjort to the Barents Sea, July 1958), by G. Saetersdal, article, Fiskets Gang, vol. 44, no. 44, October 30, 1958, pp. 569-571, illus., printed. Fiskets Gang, Postgiro Nr. 691 81, Bergen, Norway.

OCEANOGRAPHY:

"Une Methode Simple pour Determiner la Vitesse et la Direction des Courants de Fond" (A Simple Method for Determining the Intensity and Direction of Deep Currents), article, France Peche, no. 24, December 1958, pp. 30-32, illus., printed. France Peche, Tour Sud-Est, Rue de Guemene, Lorient, France.

"Observations of the Pacific Equatorial Undercurrent," by Joseph E. King and John A. Knauss, article, Nature, vol. 182, no. 4635, August 30, 1958, pp. 601-602, printed. St. Martin's Press, Inc., 103 Park Ave., New York 17, N. Y.

POND FISHERIES:

"Some Factors Related to Success of Fish Populations in Iowa Farm Ponds," by Robert B. Moorman, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 361-370, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

POPULATION SIZE:

"The Estimation of Population Size by a Marking and Recapture Procedure," by D. B. DeLury, article, Journal of the Fisheries Research Board of Canada, vol. 15, no. 1, January 1958, pp. 19-25, printed. Fisheries Research Board of Canada, Ottawa, Ontario, Canada.

SALMON:

"Reactions of Juvenile Pacific Salmon to Light," by W. S. Hoar, M. H. A. Keenleyside, and R. G. Goodall, article, Journal of the Fisheries Research Board of Canada, vol. 14, no. 6, November 1957, pp. 815-830, printed. Fisheries Research Board of Canada, Ottawa, Ontario, Canada.

SEAWEED:

"Third International Seaweed Symposium," by W. D. Richardson and E. T. Dewar, article, Nature, vol. 182, no. 4652, December 27, 1958, pp. 1779-1781, printed. St. Martin's Press, Inc., 103 Park Ave., New York 17, N. Y. A brief article describing some of the papers presented at the third International Seaweed Symposium held in Galway, Ireland, during August 13-15, 1958. Some 220 scientists and industrialists from 27 countries in Europe, Asia, Africa, and the Americas attended.

SOUTH CAROLINA:

Annual Report, 1957-1958, Contribution No. 30, 15 pp., illus., printed. (Reprinted from Report of South Carolina Wildlife Resources Department, Fiscal Year July 1, 1957-June 30, 1958.) Bears Bluff Laboratories, Wadmalaw Island, S. C., January 1959. A detailed description of the activities of Bears Bluff Laboratories for the period under review, covering the study of oysters, shrimp, crabs, finfish, and pond cultivation.

SQUID:

"Squid, *Illex illecebrosus* (LeSueur), in the Newfoundland Fishing Area," by H. J. Squires, article, Journal of the Fisheries Research Board of Canada, vol. 14, no. 5, pp. 693-728, printed. Fisheries Research Board of Canada, Ottawa, Ontario, Canada.

STRIPED BASS:

The Development of Anal Spines and Soft-Rays in Young Striped Bass, *ROCCUS SAXATILIS*, by Romeo Mansueti, Contribution No. 113, 14 pp., illus., printed. Maryland Department of Research and Education, Chesapeake Biological Laboratory, Solomons, Md., April 1958.

Eggs, Larvae and Young of the Striped Bass, *ROCCUS SAXATILIS*, by Romeo Mansueti, Contribution No. 112, 37 pp., illus., printed. Maryland Department of Research and Education,

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Chesapeake Biological Laboratory, Solomons, Md., April 1958.

SWORDFISH:

The Emperor Wears a Sword, by Bernard L. Gordon, 3 pp., illus., printed. (Reprinted from Nature Magazine, February 1959.) Rhode Island College of Education, Providence, R. I. A short article on the swordfish, Xiphias gladius, a pelagic offshore fish found on both sides of the Atlantic. The swordfish is one of the few creatures of the sea that is still pursued by New England harpooners.

TAGGING:

"Movements of Tagged Whitefish in Northern Lake Huron and Georgian Bay," by John Budd, paper, Transactions of The American Fisheries Society Eighty-Sixth Annual Meeting, 1956, pp. 128-134, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

TRADE AGREEMENTS:

"Trade Agreements Legislation: A Section-by-Section Analysis," by Honore M. Catudal, article, The Department of State Bulletin, vol. XXXIX, printed, single copy 25 cents; Part I in no. 1017, publication 6742, December 22, 1958, pp. 1013-1019; Part II in no. 1018, publication 6748, December 29, 1958, pp. 1050-1055. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Department of State, Washington, D. C.

TUNA:

"Experiencia Espanola de un Ano, al Sur del Ecuador" (A Spanish Tuna Vessel's One-Year Trip South to Ecuador), article, Industrias Pesqueras, vol. 32, no. 760, December 15, 1958, pp. 6-7, illus., printed in Spanish. Industrias Pesqueras, Policarpo Sanz 21-22, Vigo, Spain.

"El Problema del Atun en la Industria Conservera Francesa" (The Tuna Problem in France's Fish Canning Industry), by Alevin, article, Industria Conservera, vol. 24, no. 232, October 1958, p. 277, printed in Spanish. Calle Marques de Valladares, 41, Vigo, Spain.

"Tuna Resources of the Tropical and Sub-Tropical Western Atlantic," by Stewart Springer, paper, Transactions of The American Fisheries Society Eighty-Fifth Annual Meeting, 1955, pp. 13-17, printed. The American Fisheries Society, Librarian, Colorado A. & M. College, Fort Collins, Colo., 1957.

UGANDA:

Annual Report of the Game and Fisheries Department (For the Period 1st July 1956 to 30th June 1957), 89 pp., illus., printed. Government Printer, P. O. Box 33, Entebbe, Uganda, 1958. General statistics and information on supplies of fishing gear; fish production, consumption of fish in Uganda, and exports of fish for 1956; boat building and mechanization of craft; angling, fisheries research; and fish farming are some of the subjects covered. Includes a section on the fisheries of Uganda by regions: Lake Albert; Lakes George/Edward; and Lake Kyoga.

Deep-water fishing experiments on Lake Albert and experimental fishing on Lake Niamusigeri are also discussed. Other sections of the report deal with game.

URUGUAY:

Preparacion de Conservas de Pescados y Mariscos (Preparation of Fish and Shellfish for Canning), by Victor H. Bertullo and Fernando Perez Hettich, 7 pp., printed in Spanish with brief summary in English. (Reprinted from Anales de la Facultad de Veterinaria, vol. VII, no. 5, 1957.) University of the Republic of Uruguay, Montevideo, Uruguay.

SARCINA SREENIVASANI, n.sp. Bacteria Productora del "Rojo" en las Salazones de Pescado, en el Uruguay (Bacteria, Sarcina sreenivasani, n.sp., which Produces "Red" in Salted Fish in Uruguay), by Victor H. Bertullo and Fernando Perez Hettich, 11 pp., printed in Spanish with brief summary in English. (Reprinted from Anales de la Facultad de Veterinaria, vol. VII, no. 5, 1957.) University of the Republic of Uruguay, Montevideo, Uruguay.

WASHINGTON:

Washington State Department of Fisheries, 67th Annual Report, 1957, 142 pp., illus., printed. Washington State Department of Fisheries, Seattle, Wash. This report embraces an account of the Department of Fisheries during 1957 in the field of fish farming, stream improvement, hatcheries, research, and law enforcement and contains complete statistics covering commercial fishing operations throughout the State. Portions of the report also define the objectives of the Department for managing and rehabilitating the fisheries of the State during the next biennium.

WHALING:

Follow the Whale, by Ivan T. Sanderson, 445 pp., illus., printed, \$6.50. Little, Brown and Company, Boston, Mass., 1956. "Follow the whale" is what the reader does when he reads this book. Historically the author leads us from prehistory, through Neolithic times to the present. Geographically the book leads us from the Arctic through most of the seven seas to the Antarctic. We meet the whalers of the Stone Age, the Norsemen, the Phoenicians, Greeks, and Basque. On to more recent times, the author describes the whaling fleets of America, Britain, Holland, Germany, U. S. S. R., and Japan. But this is not only the story of whaling but of the whale itself. The forgotten and more neglected aspects of whaling history are vividly captured by the author. The book answers these questions: Why did the men go whaling; who among men have done so; when did they go; where did they go; how did they get there; and what did they find? After presenting a general whaling chronology and notes on maps, the book begins its recital of whaling through the ages. The book has seven parts. Part I - the prehistoric period; part II - the ancient period; part III - the early period; part IV - the middle period; part V - the late period; part VI - the modern period; and part VII - the posthistoric period. There are several appendices which include a chronology of whaling from 1550 A. D. to 1950 A. D.; the chronology of whales from 60,000,000 B. C. to 1950

A. D.; the evolution of whale tails; comparative sizes of whales; an illustrated list of living whales; and a bibliography by periods and subjects. Also included is an index. The charts in the book are particularly interesting since they illustrate the feeding grounds and migration patterns of the whales and sea currents on which the whales depend. The author, however,

does not merely recite facts and figures but brings the subject of whaling to life. Man is almost anonymous in the story, but nonetheless it is a story of courage and drama, excitement and danger, and throughout there is an underlying air of tragedy and pathos.

--Joseph Pileggi



SUBSTANCE WITH REPELLENT EFFECT ON SALMON

Scientists of the Fisheries Research Board of Canada, Ottawa, have isolated a substance--L-serine--which has a repellent effect on salmon. An effective repellent may be the answer for deterring salmon from dangerous physical barriers and polluted waters. Used in conjunction with attracting stimuli, salmon could be directed to an alternative course around obstacles to migration imposed by industrial development and increasing use of natural waters for other purposes. When migrating salmon ascending a fish ladder were exposed to human hand rinses upstream, movement of the salmon was halted until the scent in the water dissipated. The fish displayed considerable alarm reaction by rapid movements, and in some instances retreated to a lower level of the fishway. The substance which repulses the salmon is believed to be a secretory product associated with perspiration (Canadian Fisherman, February 1958).

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