



# RECENT FISHERY PUBLICATIONS

## FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON, D. C. 20402. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.  
MNL - REPRINTS OF REPORTS ON FOREIGN FISHERIES  
SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.  
SSR. - FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title
CFS-3438	- Fish Meal and Oil, January 1964, 2 pp.
CFS-3440	- Frozen Fishery Products, February 1964, 8 pp.
CFS-3451	- Frozen Fishery Products, 1963 Annual Summary, 14 pp.
CFS-3470	- Frozen Fishery Products, March 1964, 8 pp.
CFS-3475	- Maine Landings, 1963 Annual Summary, 15 pp.
CFS-3476	- Rhode Island Landings, 1963 Annual Summary, 8 pp.
CFS-3477	- South Carolina Landings, 1963 Annual Summary, 6 pp.
CFS-3481	- North Carolina Landings, 1963 Annual Summary, 9 pp.
CFS-3483	- New Jersey Landings, February 1964, 3 pp.
CFS-3487	- Massachusetts Landings, December 1963, 8 pp.
CFS-3489	- Virginia Landings, February 1964, 3 pp.
CFS-3491	- New York Landings, February 1964, 4 pp.
CFS-3492	- Wisconsin Landings, February 1964, 2 pp.
CFS-3493	- Louisiana Landings, February 1964, 3 pp.
CFS-3494	- Shrimp Landings, December 1963, 8 pp.
CFS-3495	- Wisconsin Landings, 1963 Annual Summary, 3 pp.
CFS-3496	- Gulf Coast Shrimp Data; December 1963, 20 pp.
CFS-3498	- Rhode Island Landings, January 1964, 3 pp.
CFS-3499	- Alabama Landings, 1963 Annual Summary, 7 pp.
CFS-3502	- Georgia Landings, 1963 Annual Summary, 9 pp.
CFS-3503	- California Landings, February 1964, 4 pp.
CFS-3504	- North Carolina Landings, March 1964, 4 pp.
CFS-3506	- Florida Landings, March 1964, 8 pp.
CFS-3508	- Massachusetts Landings, by Ports, 1963 Annual Summary, 14 pp.
CFS-3510	- Michigan Landings, February 1964, 3 pp.
CFS-3511	- Mississippi Landings, 1963 Annual Summary, 6 pp.

Number	Title
CFS-3512	- Fish Meal and Oil, February 1964, 2 pp.
CFS-3513	- Louisiana Landings, March 1964, 3 pp.
CFS-3514	- New York Landings, March 1964, 4 pp.
CFS-3516	- Maryland Landings, March 1964, 3 pp.
CFS-3518	- Fish Meal and Oil, March 1964, 2 pp.
CFS-3519	- North Carolina Landings, April 1964, 4 pp.
CFS-3520	- Shrimp Landings, 1963 Annual Summary, 16 pp.
CFS-3522	- Maine Landings, March 1964, 4 pp.
CFS-3524	- Florida Landings, April 1964, 8 pp.
Sep. No. 705	- Improved Rapid Method for Determining Total Lipids in Fish Meal

Sep. No. 706 - Soviet Fishing Industry

SSR-Fish. No. 480 - Further Studies of Protein and Calorie Levels of Meat-Meal, Vitamin-Supplemented Salmon Diets, by Laurie G. Fowler, J. Howard McCormick, Jr., and Allan E. Thomas, 15 pp., February 1964.

THE FOLLOWING MARKET NEWS LEAFLET IS AVAILABLE FROM THE FISHERY MARKET NEWS SERVICE, U. S. BUREAU OF COMMERCIAL FISHERIES, RM. 510, 1815 N. FORT MYER DR., ARLINGTON, VA. 22209.

Number	Title
MNL - 87	- Survey of the Dominant Conditions Affecting the Development of the Cartagena (Colombia) Fishery, 58 pp.

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

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, April and May 1964, 14 pp. ea. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif. 90731.) California canned fish receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish for the months indicated.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, February, March, and April 1964, 13, 14, and 14 pp., respectively. (Market News Service, U. S. Fish and Wildlife Service, U. S. Customs House, 610 S. Canal St., Rm. 1014,

Chicago, Ill. 60607.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the months indicated.

**Fisheries (Selected Areas) - 1963**, by E. J. Barry, pp., illus., June 1964. (Market News Service, U.S. Fish and Wildlife Service, 600 South St., New Orleans, La. 70130.) Summarizes the commercial landings of fish and shellfish for selected areas of the Gulf States of Florida (West Coast), Alabama, Mississippi, Louisiana, and Texas. The tables show landings for only the specific areas designated and cannot be interpreted as representing the total landings for a given State. However, the data do give indication of general trends. Part I reports on developments and conditions in Gulf Coast fisheries during 1963 and gives a resume of the individual fisheries. Discusses the shrimp fishery in detail; production and market conditions for the oyster, crab, and finfish fisheries; as well as imports of fresh and frozen fish and shellfish. Part II includes statistical tables showing total fishery products landings; crab meat production by areas and months; and menhaden landings and production of fish meal, oil, and solubles. It also gives data on fishery imports through the New Orleans and Morfitt City, La., Customs Districts, Port Isabel-Brownsville and Houston, Tex., and Mobile, Ala.; and LCL express shipments from New Orleans for 1963 by months and destination. Also included are tables showing monthly range of wholesale prices of fishery products on the New Orleans French Market; Gulf States oyster and shrimp packs, 1962/63 season and packs by seasons 1958-63; and fishery products market classifications in the Gulf Area.

**Mexico Monthly Landings, Production and Shipments of Fishery Products**, April 1964, 8 pp. (Market News Service, U.S. Fish and Wildlife Service, 609, 600 South St., New Orleans, La. 70130.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans; wholesale prices of fish and shellfish on the New Orleans French Market; fishery receipts at Port Isabel and Brownsville, Texas, from Mexico; Gulf menhaden landings and production of fish meal, solubles, and oil; and sponge sales; for the month indicated.

**Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland**, May 1964, 4 pp. (Market News Service, U.S. Fish and Wildlife Service, 18 S. King St., Hampton, Va. 23369.) Landings of food fish and shellfish and production of crab meat and shucked oysters in the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower Eastern Shore; the Maryland areas of Crisfield, Cambridge, Ocean City; and the North Carolina areas of Beaufort, Beaufort, and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

**New England Fisheries--Annual Summary, 1963**, by Robert A. Hall and Henry R. McAvoy, 52 pp., illus., 1964. (Market News Service, U.S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston, Mass. 02210.) Reviews the fishery marketing trends and conditions at the principal New England ports,

and highlights of the fisheries in other areas and competitive foreign countries. The latest developments in the purse-seine tuna, swordfish long-line, and offshore lobster fisheries are also reviewed. The fishery industries at the principal ports produced less food and industrial fish in 1963, but an exceptionally lucrative catch at New Bedford caused a higher total ex-vessel value than in 1962. The summary covers food-fish landings by ports and species; industrial fish landings and ex-vessel prices; fishing vessel news; imports; frozen fishery products; the fish-meal market; Canadian plans to extend Fishing Limits to 12 miles; and other information. Also includes fishery landings and ex-vessel prices for ports of Boston, Gloucester, New Bedford, Provincetown, Portland, Rockland, Point Judith, and Stonington; highlights of the Maine sardine fishery; events in the fisheries of Canada, Denmark, Iceland, Japan, and Peru; and historical data of fisheries at principal New England ports. In addition, contains data on monthly landings and ex-vessel prices, by species at Boston and Atlantic Ave. fish piers.

**New England Fisheries--Monthly Summary, April 1964**, 21 pp. (Market News Service, U.S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston, Mass. 02210.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and Boston Fish Pier and Atlantic Avenue fishery landings and ex-vessel prices by species; for the month indicated.

**(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, May 1964**, 9 pp. (Market News Service, U.S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle, Wash. 98104.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl vessels as reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

## 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.

### AMINO ACIDS:

"Chromatographic determination of amino acids in fish stickwater," by Yu. A. Vorotnikov, article, *Chem-*

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ical Abstracts, vol. 57, July 23, 1962, 2636f, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

"2-Aminoethylphosphonic acid in insoluble protein of the sea anemone *Metridium dianthus*," by Louis D. Quin, article, *Science*, vol. 144, no. 3622, May 29, 1964, pp. 1133-1134, printed, single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005.

#### ANCHOVY:

"The ripening process of anchovy," by F. Alm, article SIK-Rapport, no. 123, 1962, p. 41, printed in Swedish. Svenska Institutet for Konserverings-Forskning, Kalleback 1, Goteborg, Sweden.

#### AQUATIC PLANTS:

"Control of aquatic plants big problem," by Joe Logan, article, *South Carolina Wildlife*, vol. 11, no. 2, Spring 1964, pp. 6-9, illus., printed. South Carolina Wildlife Resources Department, Box 360, Columbia, S. C.

#### ARGENTINA:

*Establishing a Business in Argentina*, by James M. von Stroebel, OBR 64-33, 20 pp., printed, April 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) During the period 1960-62 the Argentine Government's economic policy was oriented toward the stimulation of private participation in industry and commerce, and of private foreign investment. This report discusses that country's investment climate, legislation governing investment, and business organization. Also covers patents, trademarks, and copyright; employment conditions; and the taxation picture.

#### BIOCHEMISTRY:

"Correlations between the mineral elements and protein level in fish," by E. N. Vasil'eva, N. E. Dyubyuk, and T. D. Lychnikova, article, *Chemical Abstracts*, vol. 57, November 26, 1962, p. 14302b, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

"Isolation of a substance with antithiamine activity from carp intestines," by J. C. Somogyi and H. Kuentig-Hegedus, article, *Chemical Abstracts*, vol. 59, November 11, 1963, 11938h, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

#### BRINE COOLING:

"Cooling sprats in saline solutions," by L. G. Mikhailova, article, *Kholodil'naia Tekhnika*, no. 2, 1964, pp. 41-43, illus., printed in Russian, single copy 60 Kopecks (about 67 U. S. cents). Kholodil'naia Tekhnika, c/o Four Continent Book Corp., 822 Broadway, New York, N. Y. 10003.

#### CALIFORNIA:

*Inshore Fishes of California*, by John L. Baxter, 80 pp., illus., printed, 35 cents, revised 1963. Printing Division, Documents Section, N. Seventh St. at Richards Blvd., Sacramento, Calif. 95814.

#### CANADA:

"Canada's fisheries markets in 1963," by T. R. Kinsella, article, *Foreign Trade*, vol. 121, no. 10, May 16, 1964, pp. 2-8, illus., printed. Queen's Printer, Government Printing Bureau, Ottawa, Canada. Covers briefly Canadian production, imports, and exports of fishery products during 1963. Total exports reached an all-time high of over C\$172 million. This article discusses exports and production of fresh and frozen fish, salted and canned fish, molluscs and crustaceans, and fish meal and oil. Mentions research conducted by the Fisheries Research Board of Canada in perfecting a fish flour for human consumption.

*Fisheries Statistics, Manitoba, 1962*, Catalogue No. 24-210, 10 pp., processed in French and English, March 1964, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada. Contains tables giving the value of fish landed in Manitoba, 1955-1962; quantity and value of landings by species and fisheries districts, 1961-1962; quantity and value of fishery products by species; capital equipment used in the primary fishery operations; and the number of persons engaged in the fisheries.

*Fisheries Statistics, Ontario, 1962*, Catalogue No. 24-209, 11 pp., illus., processed in French and English, April 1964, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada. Contains tables giving the value of fish landed in Ontario, 1955-1962; quantity and value of landings by species and fisheries districts, 1961-1962; capital equipment used in the primary fisheries operations; number of persons engaged in the fisheries; and new capital investment in the commercial fishery.

*Fisheries Statistics, Saskatchewan, 1962*, Catalogue No. 24-211, 8 pp., processed in French and English, April 1964, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada. Contains data on the value of fish landed in Saskatchewan, 1955-1962; quantity and value of landings by species, 1961-1962; quantity and value of landings by major species and by lakes; capital equipment in primary fisheries operations; and the number of persons engaged in the primary fisheries.

#### CHEMICAL COMPOSITION:

"The environment for chemical change in dried and frozen foods," by R. B. Duckworth and G. M. Smith, article, *Proceedings of the Nutrition Society*, vol. 22, no. 2, 1963, pp. 182-189, printed. Cambridge University Press, 200 Euston Rd., London NW1, England.

#### COLD STORAGE:

"Cold storage of cod fillets treated with polyphosphates," by Eiichi Tanikawa, Minoru Akiba, and Akira Shitamori, article, *Food Technology*, vol. 17, November 1963, pp. 87-92, printed. The Garrard Press, 510 Hickory, Champaign, Ill.

#### COLOMBIA:

*Basic Data on the Economy of Colombia*, by Herbert Lindow, OBR 64-35, 24 pp., illus., printed, April 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Although some declines in agricultural production and high food prices may have a retarding effect, there

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are good possibilities that Colombian economic growth in 1964 will exceed the 5 percent rate registered in 1963. The report discusses general features of the country--geography, population, and government; government representation between Colombia and the United States; structure of the economy; agriculture; mineral resources; and manufacturing. Also covers power, transportation and communications, labor force, finance, foreign trade, the government's role in the economy, and the Alliance for Progress. A short section discusses the Pacific Coast and Magdalena River fishery resources, and exports of Colombian shrimp to the United States.

#### COMMUNIST CHINA:

Fisheries in Communist China, by Shigeaki Shindo, Overseas Fisheries Series No. 2, 38 pp., illus., printed in Japanese. Japan Fisheries Resources Protection Association, Tokyo, Japan.

#### CONSERVATION:

Conserving American Resources (Second Edition), by Eben L. Parson, 533 pp., illus., printed, 1964, \$1.95. Prentice-Hall, Inc., Englewood Cliffs, N. J. 07632. The population explosion is something that we are continually reading about, and one of the resulting problems is conservation of our natural resources. Our major natural resources and the interrelationship among all resources are discussed very adequately in this book. In the preface the author emphasizes that more busy Americans can and should become interested in the story of our national resources and the ways they can be conserved. How resource conservation is the real connecting link between natural and social sciences is explained by the author. Not only facts and figures are to be found in the book, but also concepts. Presented is the latest thinking on such topics as Federal aid in fish and wildlife rehabilitation, multiple use of forest land, the economic plight of the commercial fisheries, land reserves, wetlands for ducks, and management of public lands. The author very ably points out: "What follows is largely an attempt to paint thinking Americans with the broad categories of natural wealth upon which their well-being depends. The treatment of each category includes a brief statement of its usefulness, a quick glance at past history, and several suggestions for getting water benefit from it in the future. The entire discussion is a development of concepts rather than recitation of facts; an exhortation to think and participate rather than an exposition on statistics and techniques." In commenting on the importance of conservation to Americans, the author states that one of us should have a "whistling knowledge" of it. In discussing "The Conservation Idea," the subtitle of the first chapter, the author says that conservation of natural resources means the fullest possible use of them without abusing the ones exploited, without destroying any needlessly, and without neglecting any that can be used. Also, natural resources serve us every day of our lives in almost everything we do, and they are essential to our existence. But more important, our continued prosperity depends upon the wisdom with which we use them. The author takes the positive approach. Discussed in the book are the natural environment and resources; water on the land, and its conservation;

our soils and their depreciation, and their conservation; spoilation and restoration of our dry grasslands; our forests and their exploitation and conservation; conservation patterns on the land; functions and abuses of wildlife, and its conservation; resources for recreation, inspiration, and instruction; resources of our bordering seas; mineral fuels and major metals, and their conservation. The last chapter deals with prospect and responsibility and points out that conservation is the key to future prosperity. Fish and fishing, both sport and commercial, are adequately covered in view of the wide scope of the book. For example, with reference to fishery resources, the book covers propagation, control of numbers, gear and techniques, habitats, imports and exports, overfishing, restoration projects, international fisheries agreements, fisheries regulation and standardization, fish flour or fish protein concentrate, fish oil and meal, packaging and transportation, species variety, underutilization, agar, algin, fur seals, interstate fishery commissions, and much more. This partial listing shows that the author has really delved into the subject of fisheries. He has done the same with the other resources. Although an excellent book for professionals, it is not too technical for any reader interested in our Nation's resources, and who wants to learn how he may help conserve them. This is a serious subject, but the author has treated it in a lively and readable manner. Those interested in commercial fisheries will find many interesting ideas and concepts regarding our fishery resources. The appendix contains teaching aids and a good listing of current literature. Because of its excellent index and marginal notes, it is a good book to have on hand for quick reference.

--Joseph Pileggi

#### CRABS:

"How crabs adjust themselves to changing salinity," article, New Scientist, vol. 16, October 11, 1962, p. 105, printed. Harrison, Raison and Co. Ltd., Cromwell House, Fulwood Pl., High Holborn, London WC1, England.

"N-ethylmaleimide inhibition of horseshoe crab hemocyte agglutination," by F. T. Bryan and others, article, Science, vol. 144, no. 3622, May 29, 1964, pp. 1147-1148, illus., printed, single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005.

#### CRAWFISH:

"Rice farmers raise crawfish in Louisiana paddies to lift income," by Fred Zimmerman, article, Wall Street Journal, vol. 69, December 10, 1963, p. 1, printed. Dow, Jones & Co., Inc., 1540 Market St., San Francisco 19, Calif.

#### CRUSTACEANS:

Nombres vulgares y científicos de las principales especies comerciales de crustáceos de Cádiz (Common and scientific names of the principal commercial species of crustaceans at Cadiz), by Julio Rodríguez-Roda, 2 pp., printed in Spanish, 1964. (Reprinted from Investigación Pesquera, vol. 25, January 1964, pp. 3-4.) Instituto de Investigaciones Pesqueras, Paseo Nacional, s/n, Barcelona-3, Spain.

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#### DAHOMEY:

Basic Data on the Economy of Dahomey, by Donald M. Maclay, OBR 64-36, 12 pp., illus., printed, April 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Presents information on Dahomey's geography and climate, form of government, and population; economic structure; agriculture and forestry; mining, industry, and power supplies. Also covers transportation, communications, finance, foreign trade; a program for economic development, marketing, and government representation between Dahomey and the United States. A short section discusses the importance of the fishing industry and potential for future development.

#### DOLPHIN:

"Visual problem-solving in a bottlenose dolphin," by Winthrop N. Kellogg and Charles E. Rice, article, Science, vol. 143, no. 3610, March 6, 1964, pp. 1052-1055, illus., printed, single copy 35 cents. American Association of the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005. In the study here reported, a captive 8-year-old dolphin, well adapted to contact with human beings, was tested by the discrimination method for underwater perception of visual forms or patterns. The animal successfully discriminated 21 of the 25 pairs of stimuli presented.

#### DRYING:

"New accelerated fish drying method," article, Food Manufacture, vol. 38, December 1963, pp. 669-670, printed. Leonard Hill Ltd., 9 Eden St., London NW1, England.

#### ENZYMES:

"Zone electrophoretic separation of five phosphoglucosylase activities from fish muscle," by E. Roberts and H. Tsuyuki, article, Chemical Abstracts, vol. 59, October 28, 1963, 10389g, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

#### FARM PONDS:

Construction and Management of Farm Ponds in Ontario, by H. D. Ayers, H. R. McCrimmon, and A. H. Berst, Publication 515, 39 pp., printed. Ontario Department of Agriculture, Parliament Bldgs., Toronto, Canada.

#### FATTY ACIDS:

"Component fatty acids of the blubber fat from the common or harbor seal Phoca vitulina concolor de Kay," by P. M. Jangaard, R. G. Ackman, and R. D. Burgher, article, Canadian Journal of Biochemistry and Physiology, vol. 41, December 1963, pp. 2543-2546, printed. National Research Council, Ottawa, Canada.

"Effect of linolenic, linoleic, and oleic acids on measuring protein extractability from cod skeletal muscle with the solubility test," by Margaret L. Anderson, Frederick J. King, and Maynard A. Steinberg, article, Journal of Food Science, vol. 28, May-June 1963, pp. 286-288, printed. Institute of Food Technologists, 510-522 N. Hickory St., Champaign, Ill.

"Gas-liquid chromatographic separation and determination of volatile fatty acids in fish meat during spoilage," by Shojiro Miyahara, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 27, January 1961, pp. 42-47, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-Ku, Tokyo, Japan.

"The influence of dietary fatty acids and environmental temperature on the fatty acid composition of Teleost fish," by Raymond Reiser and others, article, Journal of the American Oil Chemists' Society, vol. 40, October 1963, pp. 507, 513, printed. American Oil Chemists' Society, 35 E. Wacker Dr., Chicago 1, Ill.

#### FISH BEHAVIOR:

Fish Migration, by David Gunston, Wildlife Bulletin No. 33, 3 pp., illus., printed, 1962. (Reprinted from Louisiana Conservationist, February 1959.) Louisiana Wildlife Life and Fisheries Commission, Wildlife and Fisheries Bldg., 400 Royal St., New Orleans 16, La.

#### FISH COOKERY:

Louisiana Cook-Out, by Percy Viosca, Jr., Wildlife Education Bulletin No. 31, 15 pp., illus., printed, 1962. Louisiana Wild Life and Fisheries Commission, Wildlife and Fisheries Bldg., 400 Royal St., New Orleans 16, La. "Why go to Gloucester to enjoy a clambake at the beach? New England has no monopoly on that delightful form of recreation," states the author. This booklet describes the many types of shellfish and fish in Louisiana which are suitable for outdoor cooking. There are oysters, shrimp, river catfish, spoonbill sturgeon, carp, and crabs. Included are recipes for crab-meat stuffed peppers, smoked fish and a spicy seafood sauce.

#### FISH CULTURE:

"Sea fish breeding," article, Current Affairs Bulletin of the Indo-Pacific Fisheries Council, no. 37, August 1963, pp. 25-26, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Regional Office, Bangkok, Thailand.

#### FISHERY POLICIES:

Fishery Policies in the United Kingdom, The Federal Republic of Germany and Norway, by A. Arimatsu and B. Ikejiri, Overseas Fisheries Series No. 3, 42 pp., illus., printed in Japanese. Japan Fisheries Resources Protection Association, Tokyo, Japan.

#### FISH MUSCLE:

"Chemical change in fish muscle during storage," by N. R. Jones, article, Proceedings of the Nutrition Society, vol. 22, no. 2, 1963, pp. 172-176, printed. Cambridge University Press, 200 Euston Rd., London NW1, England.

"Extractives of fish muscle. 3--Amounts, sectional distribution, and variations of fat, water-solubles, protein and moisture in cod (Gadus morhua L.) fillets," by N. Damberg, article, Journal of the Fisheries Research Board of Canada, vol. 20, July 1963, pp. 909-918, printed. Queen's Printer and Controller Stationery, Ottawa, Canada.

"Studies on muscle of aquatic animals. XXXIII--Seasonal variation of nitrogenous extractives in squid muscle," by Kinji Endo and others, article, Bulletin of the Japanese Society of Scientific Fisheries, vol.

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November 1962, pp. 1099-1103, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-Ku, Tokyo, Japan.

**OILS:**

Autoxidation of fish oils. II--Changes in the carboxyl distribution of autoxidizing salmon oils," by Jane Wyatt and E. A. Day, article, Journal of Food Science, vol. 28, May-June 1963, pp. 305-312, printed. Institute of Food Technologists, 510-522 Hickory St., Champaign, Ill.

Effect of some marine oils and squalene on the plasma cholesterol in chicks," by Olaf R. Braekkan, Rein Njaa, and Finn Utne, article, Fiskeridirektoratets Skrifter, Serie Teknologiske Underrettelser, vol. 4, no. 4, 1962, pp. 1-12, printed. Fiskeridirektoratet, Bergen, Norway.

Identification of the major polyunsaturated C<sub>16</sub> acids in marine oils by GLC separation factors on normal and organosilicone polyesters," by R. G. Ackman and P. M. Jangaard, article, Journal of the American Oil Chemists' Society, vol. 40, December 1963, pp. 744-745, printed. American Oil Chemists' Society, 35 E. Wacker Dr., Chicago 1, Ill.

**SAUSAGE:**

Change of the vitamin A concentration in enriched sausage during storage in summer," by Akitugu Kenmoku and Hiroyuki Iwao, article, Chemical Abstracts, vol. 59, July 22, 1963, 2104d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

Diffusion of oxygen in packed sausage," by Akira Shimoto, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, August 1963, pp. 777-784, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-Ku, Tokyo, Japan.

Hot sausages," by Michael Lorant, article, Food Technology, vol. 38, August 1963, pp. 413-414, printed. Leonard Hill Ltd., 9 Eden St., London NW1, England.

**WAYS:**

Investigation of the Fish Passage Facilities at the Pelton Project on the Deschutes River in Oregon, by Robert T. Gunsolus and George J. Eicher, 133 pp., printed, 1962. Fish Commission of Oregon, State Office Bldg., 1400 SW. 5th Ave., Portland, Oregon, 97201.

**FROM HUNGER:**

Freedom from Hunger Campaign News, vol. 5, no. 1, May-June 1964, 33 pp., illus., printed. Co-ordinator's Office, Freedom from Hunger Campaign, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy. This issue is dedicated to "the men who harvest the sea." Contains, among others, articles on: "Warning of the blue whale," by Donovan B. Stewart; "Detectives of the deep," by Peyton Johnson; "Whalers become too efficient?" by Mackenzie; "Outboard motors power a 'revolution' in fishing;" "From dugout to factoryship;" "Tuna--the mark of the sea;" "Inland fishing--new

frontier for food;" "Solution for malnourished millions?;" and "Thriving farms on the bottom of the sea."

**FREEZE-DRYING:**

"Freeze-drying: with or without vacuum," by John P. O'Meara, article, Food Engineering, vol. 35, September 1963, pp. 55-56, printed. Chilton Co., Chestnut and 56th Sts., Philadelphia, Pa.

"The truth about freeze drying," by Sam Martin, article, Quick Frozen Foods, vol. 26, no. 10, May 1964, pp. 29-32, illustrated, printed. E. W. Williams Publications, Inc., 1776 Broadway, New York 19, N. Y. Discusses the practicality of freeze-dried foods. This process offers limited competition to conventional freezing processes. Its best uses will be for instant coffee, ingredients for some dry mixes, and military foods. The author believes it will supply frozen food packers with additional markets and broaden the use of freezing equipment.

**FREEZING:**

"Freezing of crabmeat," by S. V. Gangal and N. G. Magar, article, Food Technology, vol. 17, December 1963, pp. 101-106, printed. The Garrard Press, 510 N. Hickory St., Champaign, Ill.

**FRESH FISH:**

"Factors influencing the effectiveness of fresh fish washing operations," by W. A. MacCallum, M. W. Mullan, and Isabel N. Plaunt, article, Journal of the Fisheries Research Board of Canada, vol. 20, September 1963, pp. 1231-1244, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

**FROZEN FISH:**

"Effect of processing on public health bacteria in frozen seafoods," by H. Raj and J. Liston, article, Food Technology, vol. 17, October 1963, pp. 83-89, printed. The Garrard Press, 510 N. Hickory St., Champaign, Ill.

"Electronic defrosting of meat and fish at 35 and 2,450 Mcs. A laboratory comparison," by N. Bengtsson, article, Food Technology, vol. 17, October 1963, pp. 97-100, printed. The Garrard Press, 510 N. Hickory St., Champaign, Ill.

**HERRING:**

"Volatile acids in fish as an index of suitability for consumption. I--Salted herrings," by Jozef Wierzechowski and Maria Severin, article, Chemical Abstracts, vol. 57, November 26, 1962, 14248f, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

**HORMONES:**

"Isolation of hormone-containing particles from the neurohypophysis of the cod (Gadus morhua), by K. Lederis, article, Biochemical Journal, vol. 84, July 1962, pp. 27P-28P, printed. Cambridge University Press, 200 Euston Rd., London NW1, England.

**INDIA:**

"Fishing off the west coast of India," by Kare Larssen, article, Fishing News International, vol. 3, no. 2, April-June 1964, pp. 128, 130-131, illus., printed, single copy 6s. 6d. (about 85 U. S. cents). Arthur J. Highway Publications Ltd., Ludgate House, 110 Fleet

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

St., London EC4, England. Discusses trawling off the west coast of India, chiefly for shrimp, initiated in 1954 by the Indo-Norwegian Project. At times there is a great abundance of sardines, mackerel, tuna, pomfret, and other fish, but these species do not turn up regularly. This article covers weather conditions, fishing seasons, problems of fish location and landing, and charting of the fishing grounds by two research vessels.

#### INDONESIA:

Foreign Trade Regulations of Indonesia, by Virginia Webbert, OBR 64-39, illus., printed, April 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Foreign trade controls operate mainly through a licensing system requiring the surrender of exchange from exports and the issuance of combined import-exchange licenses for imports which enable the Government to link imports closely to exchange availabilities. Discusses trade and foreign exchange policy; import tariff system; sales and other internal taxes; documentation and fees; and labeling, marking, and packing requirements. Also covers special customs provisions, nontariff import trade controls, Indonesia's export controls, United States controls, and government representation between the two countries.

#### JAPAN:

"Fisheries research in Japan," by C. R. S. Manders, article, *Nature*, vol. 202, no. 4934, May 23, 1964, pp. 755-757, printed, single copy 4s. (about 56 U. S. cents). St. Martin's Press, 175 Fifth Ave., New York, N. Y. 10010. Discusses the evolution of the Tokai Regional Fisheries Research Laboratory, its activities, and its scientific publications.

Present Status of the Fisheries Extension Service (Technological), Fisheries Administration Series No. 2, 58 pp., illus., printed in Japanese. Japan Fisheries Resources Protection Association, Tokyo, Japan.

#### KOREA, REPUBLIC OF:

Foreign Trade Regulations of the Republic of Korea, by Lois J. DeNauw, OBR 64-24, 8 pp., printed, March 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) The government of the Republic of Korea maintains strict controls over foreign trade and exchange transactions in order to conserve its limited foreign exchange reserves and to provide protection and encouragement to its local developing industry. This report discusses Korea's import tariff system, sales and other internal taxes, documentation and fees, labeling and marking requirements, and special customs provisions. Also covers nontariff import trade controls, United States foreign trade controls, Korea's export controls, and diplomatic representation between the two countries.

#### LAVER:

On a Method of Making More Productive Fishery of the Lavers (PORPHYRA)--Engineering Ways of

Improvement and Construction, by Takeo Kurakake, Fisheries Agriculture Series No. 3, 54 pp., illus., printed in Japanese. Japan Fisheries Resources Protection Association, Tokyo, Japan.

#### MARINE MAMMALS:

"Observations of Odontocetes in central Californian waters," by Robert L. Brownell, Jr., article, *Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette)* vol. 53, no. 3, March 1964, pp. 60-62, 64, 66, illus., printed. Hvalfangerforeningen, Sandefjord, Norway. Reports observations of 8 different species of odontocetes made during the summer of 1963.

#### MARINE OILS:

"The effects of marine animals oils and other marine products on cholesterol metabolism. A review," by Takashi Kaneda, article, *Bulletin of the Japanese Society of Scientific Fisheries*, vol. 29, April 1963, pp. 387-398, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-Ku, Tokyo, Japan.

#### MOZAMBIQUE:

Basic Data on the Economy of Mozambique, by Ellen Gavrishoff, OBR 64-29, 8 pp., illus., printed, March 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) This Portuguese province has an extensive coastline and the territorial waters abound in a large variety of fish. A new large fishing company, formed in 1963 with a capital of \$2.8 million, expects annually to freeze some 30,000 tons of fish for export. This report discusses the form of government and population, structure of the economy, agriculture, livestock and forestry, and mining and industry. Also covers Mozambique's power and transportation situation, communications system, finance and foreign trade problems, marketing set-up, and diplomatic representation between Mozambique and the United States.

#### NETS:

Net Repair Manual, by Stacy V. Gebhards, 23 pp., illus., processed, 1964. Idaho Fish and Game Dept. 518 Front St., Boise, Idaho. Although most nets are machine-tied and are purchased readymade from various companies, net repair must still be done by hand. A properly mended net can mean the difference between catching many fish or none at all. The intent of this manual is merely to acquaint the beginner with the proper procedure. Proficiency in mending can come only through practice. The manual covers trimming, weaving, section replacement, hanging, and maintenance of nets.

#### NORTHWEST ATLANTIC FISHERIES COMMISSION:

List of Vessels over 50 Gross Tons Fishing in the ICNAF Convention Area in 1962, 123 pp., illus., processed, January 1964. International Commission for the Northwest Atlantic Fisheries, Bedford Institute of Oceanography, P. O. Box 638, Dartmouth, N. S., Canada.

North Atlantic Fish Marking Symposium, Woods Hole, Mass., May 1961, Special Publication No. 4, 370 pp., illus., printed, 1963. International Commission for the Northwest Atlantic Fisheries, Bedford Institute of Oceanography, P. O. Box 638, Dartmouth, N. S., Canada.

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**WAY:**  
 Industria de conservas de peixe Norueguesa em 1963" (The Norwegian fish canning industry in 1963), article, *Conservas de Peixe*, vol. 18, no. 216, March 1964, pp. 15-17, 28, printed in Portuguese. Sociedade da Revista Conservas de Peixe, Lda., Regueiros dos Anjos, 68, Lisbon, Portugal.

**WAY LOBSTERS:**  
 Handling and processing Norway lobsters. Part 1-- observations on handling and processing; Part 2-- washing experiments," by P. Hovart and W. Vyncke, article, *Fishing News International*, vol. 3, no. 2, April-June 1964, pp. 117, 119, 121-122, 125, illus., printed, single copy 6s. 6d. (about 85 U. S. cents). Arthur J. Heighway Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England. The work reported here was carried out as part of the research program of the Committee for Applied Scientific Research in Fisheries, Fisheries Research Station, Ostend, Belgium. These are the first two parts of a four-part article. The aim of the work was a contribution to the improvement of handling and processing of Norway lobsters (a shrimp-like crustacean) in commercial plants. In the meantime, it was intended to study the possibilities of cooking the lobsters on the vessels directly after catching. To study the influence of some important factors on the washing effect, three series of experiments were carried out, each being repeated three times on different dates and with different samples. In particular, the influence of dipping time, water temperature, soaking before washing and hoses were studied.

**TOGROGRAPHY:**  
*Travaux du Conseil*, vol. 28, no. 3, March 1964, 127 pp., illus., printed, single copy Kr. 16 (about \$2.35). Andr. Fred. Høst & Son, Bredgade, Copenhagen, Denmark. Contains, among others, articles on: "A temperature-controlled salt-water circulating apparatus for developing fish eggs and larvae," by William E. Fahy; "Age determination in whiting (*Merlangius merlangus* L.) by means of radioisotopes," by R. Gambell and J. Messtorff; "On the influence of the fishery upon the population structure of codfish (*Sebastes marinus* L. and *Sebastes menidia* Travin)," by V. P. Sorokin; "The rational development of a process in salmon migration," by Bernard C. Johnson; "A comparison among selected marine species of an association between sea water temperature and relative abundance," by Robert L. Dow; and "Spawning and gonadal cycle of oysters in Loch Lomond, Scotland," by R. H. Miller.

**TOGROGRAPHY and Marine Biology. An Annual Review**, edited by Harold Barnes, 478 pp., printed, 1963, 75s. (about US\$10.50). George Allen and Unwin Ltd., 40 Museum St., London WC1, England.

**R. Oceanographic and Marine Studies, OTS**, vol. 798, 73 pp., printed, September 20, 1963, \$2. U. S. Department of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

**Annual Report to the Governor and the Fifty-Second Legislative Assembly, July 1, 1960-June 30, 1962**, illus., printed. Fish Commission of Oregon, State Office Bldg., 1400 SW. 5th Ave., Portland

1, Oreg. How the Fish Commission is organized, what it is doing to discharge its statutory responsibilities to the resource and to the people of Oregon, and the highlights of its operation during the biennium from July 1, 1960, to June 30, 1962 form the basis of this report. It contains information on: work of the Administrative, Engineering, Research, and Fish Culture Divisions; the Service Recognition Program; Suggestion Awards Program; and other topics. Also included are statistical tables giving data on: liberations of salmon and steelhead trout into State waters; number of eggs taken at Fish Commission hatcheries; landings of food fish and shellfish; commercial fishing licenses issued; and fisheries law enforcement.

**OYSTERS:**  
 "Winter hits the oyster industry," article, *New Scientist*, vol. 20, October 3, 1963, pp. 10-11, printed. Harrison, Raison and Co. Ltd., Cromwell House, Fulwood Pl., High Holborn, London WC1, England.

**PHYSIOLOGY:**  
 "Measurements of swimming speeds of yellowfin tuna and wahoo," by Vladimir Walters and Harry L. Fierstine, article, *Nature*, vol. 202, no. 4928, April 11, 1964, pp. 208-209, illus., printed, single copy 4s. (about 60 U. S. cents). St. Martin's Press, Inc., 175 Fifth Ave., New York, N. Y. 10010.

**PLANKTON:**  
 "The wonderful world of plankton," by Donald J. Hall, article, *The Conservationist*, vol. 18, no. 5; April-May 1964, pp. 22-25, illus., printed. The Conservationist, Rm. 335, State Campus, Albany, N. Y.

**PORPOISES:**  
 "On the experience gained in commercial fishing for porpoises," by A. I. Petrenko, article, *Rybnoe Khoziaistvo*, vol. 38, no. 3, 1962, pp. 44-48, printed in Russian. VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U. S. S. R.

**PREDATOR CONTROL:**  
 "A method for the analysis of chlorinated benzenes in clams (*Mercenaria mercenaria*) and oysters (*Crasostrea virginica*), by N. Schwartz and others, article, *Journal of the Association of the Official Agricultural Chemists*, vol. 46, October 1963, pp. 893-898, printed. Association of Official Agricultural Chemists, P. O. Box 540, Benjamin Franklin Station, Washington 4, D. C.

**PRESERVATION:**  
Handling and Preservation of Fish, Report on the Work of Torry Research Station and Humber Laboratory, 24 pp., printed, 1962. Torry Research Station, Aberdeen, Scotland. Reviews the history and work of the Torry Research Station and its subsidiary, the Humber Laboratory, Hull, England. The Torry Station conducts research mainly in the fields of fish handling, processing, preservation, and transportation. The Humber Laboratory handles problems related to the distant-water fisheries and the Humber fishing ports. The two stations are fully integrated. Reference to work at Torry should be understood to include the Humber Laboratory as well.



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#### PROTEIN:

"Fish hydrolysates. III--Influence of degree of hydrolysis on nutritive value," by N. V. Sripathy and others; "IV--Microbiological evaluation," by M. A. Krishnaswamy and N. L. Lahiry, articles, Journal of Food Science, vol. 28, May-June 1963, pp. 358-369, printed. Institute of Food Technologists, 510-522 N. Hickory St., Champaign, Ill.

"Protein solubility as influenced by physiological conditions in the muscle," by R. N. Sayre and E. J. Briskey, article, Journal of Food Science, vol. 28, November-December 1963, pp. 675-679, printed. Institute of Food Technologists, 510-522 N. Hickory St., Champaign, Ill.

"Proteins in fish muscle. 18--Sedimentation patterns of myosin-B extracts of prerigor cod muscle," by J. R. Dingle and others, article, Canadian Journal of Biochemistry and Physiology, vol. 41, September 1963, pp. 1915-1926, printed. National Research Council, Sussex St., Ottawa, Canada.

"Study of fish serum proteins by starch-gel electrophoresis," by Andree Drilhon, article, Chemical Abstracts, vol. 57, December 10, 1962, 15624d, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

#### QUALITY:

"Significance of the variations in the content of nucleotides, free amino acids, and carbohydrates of the fish muscle in judging quality," by F. Bramstedt, article, Fette, Seifen, Anstrichmittel, vol. 64, September 1962, pp. 820-825, printed in German. Industrieverlag von Hernhaußen K. G., 24 Rodingsmarkt, Hamburg II, Germany.

"Sulphydryl groups as an index of changes in fish tissue during refrigeration," by N. A. Golovkin and L. I. Pershina, article, Chemical Abstracts, vol. 56, June 25, 1962, 15894a, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

#### RADIATION PRESERVATION:

Low-Level Radiation Preservation of Fishery Products, October 1960-October 1962, by Joseph W. Slavin, Maynard A. Steinberg, and Thomas J. Connors, TID-18285, 37 pp., printed, April 1963, \$1. Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Study of Irradiated-Pasteurized Fishery Products, October 1, 1962-September 30, 1963, by Joseph W. Slavin and Louis J. Ronsivalli, 82 pp., illus., printed, November 1963, \$2. Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### REFRIGERATION:

Refrigeration in Fishing Vessels, by G. C. Eddie, Torry Memoir No. 58, 8 pp., printed, 1961. Torry Research Station, Aberdeen, Scotland.

#### RESOURCES:

Plan for Development of the Land and Water Resources of the Southeast River Basins, 183 pp.; Appendix 1--Savannah Basin, 211 pp.; Appendix 2--Ogeechee Basin, 146 pp.; Appendix 3--Altamaha Basin, 177 pp.; Appendix 4--Satilla-St. Marys Basin, 170 pp.;

Appendix 5--Suwannee Basin, 159 pp.; Appendix 6--Ochlockonee Basin, 183 pp.; Appendix 7--Apalachicola-Chattahoochee-Flint Basins, 226 pp.; Appendix 8--Choctawhatchee-Perdido Basins, 176 pp.; Appendix 9--Economics, 243 pp.; Appendices 10 & 11--Hydrology; Engineering and Cost, 145 pp.; Appendices 12 & 13--Planning; History and Organization of the Commission, 276 pp.; illus., printed, 1963. United States Study Commission, Southeast River Basins, Box 953, Atlanta 1, Ga.

#### SALMON:

"Eighth progress report on salmon diet experiments," by Thomas B. McKee and others, article, Research Briefs, vol. 9, no. 1, May 1963, pp. 52-56, printed. Fish Commission, 307 State Office Bldg., 1400 SW 5th Ave., Portland, Ore. 97201.

"Ninth progress report on salmon diet experiments," by Wallace F. Hublou and others, article, Research Briefs, vol. 9, no. 1, May 1963, pp. 57-62, printed. Fish Commission, 307 State Office Bldg., 1400 SW 5th Ave., Portland, Ore. 97201.

The Salmon King of Oregon (R. D. Hume and the Pacific Fisheries), by Gordon B. Dodds, 271 pp., illus., printed, 1959, \$6. The University of North Carolina Press, Chapel Hill, N. C. This year (1964) marked the designation of the site of the first Pacific Coast salmon cannery (built in Sacramento, Calif., 100 years ago) as a National Historic Landmark. Because of the renewed interest in the early history of the Pacific Northwest salmon canning industry, it is fitting that attention be called to this book even though it was published several years ago. This is not really a full biography because, as the author points out, the necessary records are missing. But it is an economic history of the salmon canning industry in Oregon. Hume was a salmon canner of prominence and an early apostle of conservation. He was a member of the pioneer family in the salmon industry and an innovator in developing the techniques of the trade. The author admits that the scale of Hume's operations was much smaller than that of his competitors on the Columbia River, but his problems were the same as those of the larger cannery operators. It seems that the vicissitudes facing the salmon cannery today are still exactly the same as those facing Hume: relentless competition; the search for larger domestic and foreign markets; relations with distant commission men; the supply of salmon; and securing of labor. But Hume had one more problem which no longer faces today's canner--the difficulty of manufacturing reliable cans. You will find on reading the book that Hume's solutions to the problems mentioned "were vigorous, imaginative and colorful." What Hume lacked in scientific knowledge of salmon he made up with inventiveness. Some of the first experiments in the artificial propagation of salmon were conducted in his own hatcheries. Hume erected an economic complex on the Rogue River in southwestern Oregon based upon his control of fishing rights on the river. Hume's career is significant not only because of what he himself accomplished, but also because it exemplifies so well the beliefs of his era in mechanical inventiveness, economic monopoly, progress, and the sanctity of wealth and business. The chapters in the book deal with Hume's migration from Maine to the Columbia, and to Oregon; the Rogue River salmon; the monopoly Hume developed; Hume's

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politician; the trials of a hatcheryman; his attempts to influence public opinion and to expand his empire; and the last chapter discusses the man and the times he lived in. Quite interesting is the appendix which gives the salmon pack on the Rogue River from 1877 through 1908. The book contains a good bibliography, and an index. This study tries to fill the gaps in American economic history, more specifically the activities of the frontier capitalist businessman-conservationist in developing the salmon canning industry of the Pacific Northwest. It is a book that makes fascinating reading. It is an excellent addition to the library of any one interested in the early history of commercial salmon fishing and canning.

--Joseph Filippi

#### FISH:

Accelerated cooling of wet, heavily salted fish," by L. Wood, article, Journal of the Fisheries Research Board of Canada, vol. 20, July 1963, pp. 997-1000, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

#### PREPARATION:

Bacteriological survey of filleting processes in the Pacific Northwest. I--Comparison of methods of sampling fish for bacterial counts," by Wayne I. Stevens, article, Journal of Milk and Food Technology, vol. 26, September 1963, pp. 302-306, printed. International Association of Milk and Food Sanitation, Box 437, Shelbyville, Ind.

Increase in resistant strains on fish container during CTC-icing, and reduction of bacterial load on frozen container with bactericides," by Tetuo Tomura, Yasuo Yone, and Etsuko Shiraishi, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 28, October 1962, pp. 1028-1042, printed. Japanese Society of Scientific Fisheries, Shiba-Kai-cho 6, Minato-Ku, Tokyo, Japan.

#### RESEARCH:

Sea-caught and day-caught larvae of the California sardine," by John D. Isaacs, article, Science, vol. 146, no. 3622, May 29, 1964, pp. 1132-1133, illus., single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005.

Chemical analysis of saury. I--Vitamin A of fish eye," by Takuro Yamamura and Seichiro Muto, article, Chemical Abstracts, vol. 59, November 11, 1963, pp. 1133-1134, printed. The American Chemical Society, 11th St. NW., Washington, D. C.

#### RESEARCH:

Properties of soluble alginates. II--The pH of soluble alginates including lithium alginate, sodium alginate, potassium alginate and ammonium alginate," by Masao Oguro, article, Bulletin of the Faculty of Fisheries, Hokkaido University, vol. 12, May 1961, pp. 1-12, printed. Faculty of Fisheries, Hokkaido University, Kameda-Machi, Hakodate, Japan.

Composition and palatability of porbeagle flesh," by Dyer and D. I. Fraser, article, Journal of the

Fisheries Research Board of Canada, vol. 20, September 1963, pp. 1153-1156, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

#### SHRIMP:

"Occurrence of two penaeid shrimps, *Artemisia longinaris* (Bate) and *Hymenopenaeus mulleri* (Bate), and some lesser-known shrimps in coastal waters of South America," by M. N. Mistakidis and G. de S. Neiva, article, Nature, vol. 202, no. 4931, May 2, 1964, pp. 471-472, printed. St. Martin's Press, Inc., 175 Fifth Ave., New York, N. Y. 10010.

#### SMALL BUSINESS MANAGEMENT:

Management Staffing in Small Business, by Howard V. Finston and Karl Christman, Management Research Summary, 2 pp., processed, 1964. Small Business Administration, Washington, D. C. 20416. The study reported in this summary examines the practices followed in the selection, development, and retention of executives by some rapidly growing small businesses in New Mexico.

#### Success or Failure of New Small Manufacturers, by

William M. Hoad and Peter Rosko, Management Research Summary, 2 pp., processed, 1963. Small Business Administration, Washington, D. C. 20416. Why do some new manufacturers succeed while others fail? The study reported in this summary sought answers to this question in a 3-year study of 95 new small manufacturing businesses. Successful firms were often characterized by (1) two or more executives with different backgrounds; (2) experienced management--five years or more in managerial functions; (3) highly educated management; (4) consultations before and after starting the business; (5) use of management tools such as budgets and controls; and (6) establishment of definite, realistic objectives before committing funds. Failure was often caused by inadequate training, experience, or ability on the part of the management.

#### Using Security to Get a Bank Loan, by Leonard J. Konopa,

Small Marketers' Aid No. 102, 4 pp., processed, April 1964. Small Business Administration, Washington, D. C. 20416. Sometimes the small marketer's signature is the only security the bank needs when making a loan. At other times, the bank requires additional assurance that the money will be repaid. The kind and amount of security depends on the bank and on the small business owner's situation. Among the types of security discussed in this report are: endorser, comakers, and guarantors; assignment of leases; trust receipts for floor planning; savings accounts; and life insurance policies.

#### SPAIN:

Nombres vulgares y científicos de las principales especies comerciales de peces de la región sudatlántica española (Common and scientific names of the principal commercial fish species of Spain's South Atlantic coast), by Julio Rodríguez-Roda, 17 pp., illus., printed in Spanish, 1960. (Reprinted from Investigación Pesquera, vol. 22, November 1960, pp. 109-125.) Instituto de Investigaciones Pesqueras, Paseo Nacional, s/n, Barcelona-3, Spain.

#### SPOILAGE:

"Bacteriology of spoilage of fish muscle. II--Incidence of spoilers during spoilage," by R. Adams, L. Farber,

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and P. Lerke, article, Applied Microbiology, vol. 12, no. 3, May 1964, pp. 277-279, illus., printed, single copy \$3. The Williams & Wilkins Co., 428 E. Pres-ton St., Baltimore, Md. 21202.

"Factors influencing the keeping quality of fresh-water fish in ice," by N. L. Lahiry, M. N. Moorjani, and B. R. Baliga, article, Food Technology, vol. 17, September 1963, pp. 123-125, printed. The Garrard Press, 510 N. Hickory St., Champaign, Ill.

#### STERN TRAWLERS:

"Fishing equipment and technique for a refrigerated stern trawler," by F. W. Jenckel, article, Schiffbautechnik, vol. 12, 1962, pp. 540-555, printed in German. VEB Verlag Technik, 13/14 Oranienburgerstrasse, Berlin C2, Germany.

"Refrigerated stern trawler," article, Schiff und Hafen, vol. 14, no. 10, 1962, pp. 867-888, printed in German. C. D. C. Heydorns Buchdruckerei, Uetersen bei Hamburg, Germany.

#### STRIPED BASS:

"Hopes high for striped bass hatchery," by Otho May, article, South Carolina Wildlife, vol. 11, no. 2, Spring 1964, pp. 14-15, illus., printed. South Carolina Wildlife Resources Department, Box 360, Columbia, S. C.

#### TOXICITY:

"Separation and purification of toxic constituent of swellfish," article, Chemical Abstracts, vol. 56, April 2, 1964, 7684a, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

"Source of paralytic shellfish toxin in the Bay of Fundy," by A. Prakash, article, Journal of the Fisheries Research Board of Canada, vol. 20, July 1963, pp. 983-996, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

"Studies on the food poisoning caused by aquatic foods. I--Preliminary survey on toxic substance of octopus which caused food poisoning," by Yoshihiro Sato, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, March 1963, pp. 263-266, printed. Japanese Society of Scientific Fisheries, Shiba-Kai-gandori 6, Minato-Ku, Tokyo, Japan.

#### TOXINS:

"Tarichatoxin-tetrodotoxin: A potent neurotoxin," by H. S. Mosher and others, article, Science, vol. 144, no. 3622, May 29, 1964, pp. 1100-1110, illus., printed, single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005. A nonprotein substance isolated from the California newt is the same as the toxin from the puffer fish.

#### TRAWL NETS:

The Study of the Mesh Selection of Trawl Nets, with Special Reference to the Mesh Regulation on the Japanese Trawl Fishery in the East China and the Yellow Seas, by Tsuneo Aoyama, Fisheries Research Series No. 2, 42 pp., illus., printed in Japanese. Japan Fisheries Resources Protection Association, Tokyo, Japan.

#### TROUT:

"Fat oxidation and storage life of iced trout. I--Influence of gutting," by Poul Hansen, article, Journal of the Science of Food and Agriculture, vol. 14, November 1963, pp. 781-786, printed. The Society of Chemical Industry, 14 Belgrave Sq., London SW1, England.

#### TUNA:

"Biochemical studies on tuna. IV--Effect of cold storage on the base composition of testis deoxyribonucleic acid (DNA)," by Yutaka Fuji, Koichi Mimoto, and Shichiro Higasa, article, Chemical Abstracts, vol. 57, November 26, 1962, 14301a, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

Biología del Atun, THUNNUS THYNNUS (L.) de la costa sudatlántica de España (Biology of the bluefin tuna, Thunnus thynnus (L.), of Spain's South Atlantic coast), by Julio Rodríguez-Roda, 114 pp., illus., printed in Spanish with English summary, 1964. (Reprinted from Investigación Pesquera, vol. 25, January 1964, pp. 33-146.) Instituto de Investigaciones Pesqueras, Paseo Nacional, s/n, Barcelona-3, Spain.

#### TUNALIKE FISH:

Japansk Bonito- og Tunafiske (Japanese Bonito and Tuna Fishing), by Torolf Holme, Fiskeridirektoratets Skrifter, Serie Fiskeri, vol. 5, no. 1, 1964, 77 pp., illus., printed in Norwegian with English summary. A. S. John Griegs Boktrykkeri, Bergen, Norway.

#### U. S. S. R.:

Rybnoe Khoziaistvo, vol. 40, no. 4, April 1964, 95 pp., illus., printed in Russian, single copy 50 Kopecks (about 56 U. S. cents). Rybnoe Khoziaistvo, B-140 V. Krasnosel'skaia 17, Moscow, U. S. S. R. Included among others, these articles: "Basic trends of technical progress in the fishing industry during 1966-1970;" "Biology and fisheries for basic fishes of southern Atlantic," by S. O. Overko; "Fishing area off eastern Greenland," by L. N. Pechenik and M. Mina; "Present condition and future development of fishery ports," by I. A. Kunitskii; "Ocean perch and herring trawl operations of the SRTR Uliiss," by G. Grishchenko; "Use of electric current in the harpooning of seals," by B. I. Badamshin and others; "Glebovskii, a large stern trawler;" "Agar from Bla Sea gelidium algae," by A. A. Kalugina; "The fishing industry of the U. S.," by A. B. Kuz'mychev; and "Second session of the Mixed Commission on Cooperation in Marine Fisheries (Soviet Union, Poland, and Germany)."

--M. A. Kraus

Rybnoe Khoziaistvo, vol. 40, no. 5, May 1964, 96 pp., illus., printed in Russian, single copy 50 Kopecks (about 56 U. S. cents). Rybnoe Khoziaistvo, B-140 V. Krasnosel'skaia 17, Moscow, U. S. S. R. Included among others, these articles: "The development of a large chemical industry and technical progress in the fishing industry," by V. P. Zaitsev; "Our first experience with new fishery regulations," by E. N. Zancheev; "The characteristics of fishing for white whales and regularity of their distribution in the Arctic," by D. A. Butorin; "Purse-seining for halibut and other bottomfish in the waters off Kamchatka

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

I. A. Polutov and others; "Selection of infrared thermo-emanator in warm processing of fish," by N. Sakharova and E. I. Mellekh; "Objective method of determining the degree of fat acidity in salted herring," by L. A. Liubavina; "Chemical composition and possible processing techniques for Far Eastern molluscs," by D. Ia. Ertel; "Possibilities of increasing the efficiency of operation of large bottom trawlers (BMRT)," by N. S. Iukhno and V. A. Plitskii; "Soviet-Ghanaian agreement on cooperation in marine fisheries;" and "Physical principles of fish detection," by I. Kliukin.

--M. A. Kravanja

**Viet-Nam:**  
Foreign Trade Regulations of Viet-Nam, by Nandor Cheplo, OBR 64-49, 8 pp., printed, May 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale of the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)  
 Viet-Nam's chronic imbalances in foreign trade, low level of exchange reserves, and need to stimulate industrialization are important factors in the government's restrictive trade policy. This report contains information on the import tariff system, taxes, and other internal taxes, documentation and labeling and marking requirements, and special customs provisions. Also discusses nontariff export trade controls, Viet-Nam's export controls, United States foreign trade controls, and diplomatic representation between the two countries.

**Vitamin A:**  
 Effect of processing on the vitamin A content of Nile fishes," by S. R. Norcos and M. K. Saleh, article, Chemical Abstracts, vol. 59, August 5, 1963, pp. 39-44, printed. The American Chemical Society, 116th St. NW., Washington, D. C. 20006.

Studies on the mechanism of consumption and accumulation of vitamin A in fish (Part II)," by Yaro Yamamura, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 28, January 1964, pp. 39-44, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-Ku, Tokyo, Japan.

**OIL:**  
 Additives. Hydrogenated sperm oil," article, Chemical Abstracts, vol. 57, December 10, 1962, pp. 39-44, printed. The American Chemical Society, 116th St. NW., Washington, D. C. 20006.

**WHALES:**

"Flavour of beef and whale meat," by Irwin Hornstein, Patrick F. Crowe, and William L. Sulzbacher, article, Nature, vol. 199, September 28, 1963, pp. 1252-1254, printed. St. Martin's Press, Inc., 175 Fifth Ave., New York, N. Y. 10010.

"Movement of humpback whales marked in the South West Pacific Ocean 1952 to 1962," by W. H. Dawbin, article, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 53, no. 3, March 1964, pp. 68, 70-74, 76-78, illus., printed. Hvalfangerforeningen, Sandefjord, Norway.

"Properties of components of myoglobin of the sperm whale," by M. Z. Atassi, article, Nature, vol. 202, no. 4931, May 2, 1964, pp. 496-498, illus., printed. St. Martin's Press, Inc., 175 Fifth Ave., New York, N. Y. 10010.

"Reprocessing of whale fat into edible hydrogenated fat," by T. A. Khorin, article, Chemical Abstracts, vol. 58, January 7, 1963, 876e, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

**WHALING:**

"Antarctic season 1963/64," article, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 53, no. 3, March 1964, pp. 78, 80-81, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway. In the season 1963/64, 16 factoryships took part in pelagic whaling operations in the Antarctic. This was one less than in the previous season; the British factoryship Southern Harvester, sold in 1963 to Japan, did not participate in the operations. The International Whaling Commission had resolved at its meeting in 1963 to give total protection to the blue whale in all but one Antarctic area. The humpback whale was totally protected. Further, the Commission fixed the maximum catch for season 1963/64 at 10,000 blue-whale units, where the "ceiling" had been 15,000 units in the previous season. The season lasted from December 12 to April 7 for fin and sei whales, and from February 1 to April 7 for blue whales. Included in this article are statistical tables showing the Antarctic catch by country in the past 3 seasons; catch by blue-whale units, 1963/64; blue whale catches for the past 3 seasons; and production of whale and sperm oil by fleet.

**YELLOWTAIL:**

Notes on the Ecology and Fisheries of the Yellowtail SERIOLA QUINQUERADIATA T. et S., of the Japanese Waters, by Fumio Mitani, Fisheries Research Series No. 1, 43 pp., illus., printed in Japanese. Japan Fisheries Resources Protection Association, Tokyo, Japan.



### "RIVERS OF MUD" AT BOTTOM OF SEA

A series of mammoth "sea channels" carved out of the bottom of the ocean by gigantic "rivers of mud" have been found by United States scientists. Their findings were made public on July 26, 1964, by the Director of the Coast and Geodetic Survey (C. & G. S.), U. S. Department of Commerce. He reported that the "sea channels" were located in the Bay of Bengal.

The findings resulted from a study made by the C. & G. S. oceanographic research vessel Pioneer. The 312-foot "floating laboratory" is participating in a 20-nation study of the Indian Ocean, scientifically one of the least known areas of the world. Its 27,000-mile cruise ended August 11 when it returned to its home base of Oakland, Calif., after an absence of six months.

The study was conducted by three oceanographers -- 2 from the Coast and Geodetic Survey, and 1 from the Scripps Institution of Oceanography. They reported that at least a score of the "sea channels" was discovered on the bottom of the Bay of Bengal off the southern coast of India.

"These channels are of enormous dimensions," said one of the oceanographers. "The largest surveyed by our scientists, located about 2 miles below the surface of the sea, was about 4 miles wide and 300 feet deep. We estimated that it carried a volume of water 25 times larger than that of the Mississippi River. We followed it for about 200 miles before we lost it." The Mississippi River is about a mile wide and up to 50 feet deep. The oceanographer said the channels were apparently dug out of the sea bottom by "gigantic rivers of mud."

"Over the years," he said, "the many rivers which pour into the Bay of Bengal, including the Ganges, Iraquadi, and Brahmapoutra, deposit their mud on the continental shelves a connecting link with the ocean bottom which begins at the water's edge. Possibly about once or twice each century, this mud suddenly moves with compelling force from the shelves across the bottom of the sea through these huge channels. What triggers these sudden avalanches of mud at the bottom of the sea is not known.

"But the mud is apparently funneled down submarine channels cut into the steep continental slopes, which link the continental shelves and the ocean bottom, and pours across the almost flat sea floor for hundreds of miles. At some time in the distant past, the mud avalanches cut these enormous channels out of the sea bottom.

"Each time this unusual phenomenon occurs, it fills the sea channels to overflowing with huge, massive, fluid rivers of mud. The volume is so great that in overflowing the channels it builds its own levees or walls, just as the Mississippi River does on land. These mud rivers run along the bottom of the sea like a flood of mercury. We don't know how long these avalanches last. We believe they travel at high speed and their volume is measured in millions of cubic yards of mud. They represent a truly remarkable phenomena of the sea."

The C. & G. S. oceanographer said the channels are to be found as far as 500 miles from shore.

Scientists knew before that deep-sea floor channels existed, but the impression up to now has been that they represented a series of structural faults in the ocean bottom. Only a few had been located in the Bay of Bengal.

"Our study definitely established," declared the scientist, "that these channels are not structural faults, that they were caused by rivers of mud, that they represent a complete system rather than the isolated 2 or 3 we believed existed before. These sea channels of the Bay of Bengal represent the greatest network and the greatest display of these unusual features found anywhere so far. This is undoubtedly one of the major discoveries of our expedition."

The Pioneer spent two weeks studying the sea channels. (News Release, July 26, 1964, Coast and Geodetic Survey, U. S. Department of Commerce.)