



FISH AND WILDLIFE SERVICE PUBLICATIONS

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- CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
 FL - FISHERY LEAFLETS.
 SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
 SL - STATISTICAL LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
 SSR. FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title
CFS-3405	- California Landings, October 1963, 4 pp.
CFS-3407	- Mississippi Landings, October 1963, 3 pp.
CFS-3408	- Mississippi River Fisheries, 1962 Annual Summary, 9 pp.
CFS-3409	- Mississippi Landings, November 1963, 3 pp.
CFS-3414	- North Carolina Landings, December 1963, 4 pp.
CFS-3415	- New Jersey Landings, November 1963, 4 pp.
CFS-3416	- New Jersey Landings, December 1963, 3 pp.
CFS-3420	- Michigan Landings, November 1963, 3 pp.
CFS-3423	- Ohio Landings, November 1963, 3 pp.
CFS-3424	- Ohio Landings, December 1963, 3 pp.
CFS-3425	- Alabama Landings, December 1963, 4 pp.
CFS-3426	- Fish Meal and Oil, December 1963, 2 pp.
CFS-3428	- Maryland Landings, December 1963, 4 pp.
CFS-3429	- Ohio Landings, 1963 Annual Summary, 4 pp.
CFS-3430	- Louisiana Landings, December 1963, 3 pp.
CFS-3431	- Georgia Landings, January 1964, 2 pp.
CFS-3432	- North Carolina Landings, January 1964, 4 pp.
CFS-3433	- Virginia Landings, December 1963, 4 pp.
CFS-3434	- South Carolina Landings, January 1964, 2 pp.
CFS-3435	- New York Landings, December 1963, 4 pp.
CFS-3437	- Florida Landings, January 1964, 7 pp.
CFS-3439	- Shrimp Landings, September 1963, 8 pp.
CFS-3450	- Advance Report on the Fisheries of the United States, 1963, 23 pp.

Wholesale Dealers in Fishery Products (Revised):

- SL-24 - Minnesota (Great Lakes Area), 1963, 1 p.
 SL-26 - Illinois (Great Lakes Area), 1963, 2 pp.
 SL-27 - Indiana (Great Lakes Area), 1962, 1 p.
 SL-33 - North Dakota (Mississippi River and Tributaries), 1962, 1 p.
 SL-37 - Kansas (Mississippi River and Tributaries), 1962, 1 p.

Sep. No. 702 - Lake Erie Fisheries Explorations, May-November 1960.

FL-481 - The Use of Aquatic Plants in the Home Aquarium, 4 pp., revised, May 1963.

FL-552 - Estimated Federal Income Tax Procedure for Commercial Fishermen: Questions and Answers by DeVora R. Alexander, 6 pp., October 1963.

FL-562 - Sacramento River Chinook Disease (SRCD) by Thomas J. Parisot, 2 pp., October 1963.

SSR-Fish. No. 422 - Records and Observations from Plankton Grid Studies off Baja California, April 1963 by David Kramer, 44 pp., illus., September 1963.

SSR-Fish. No. 444 - Northeast Pacific Albacore Oceanography Survey, 1961, by R. W. Owen, Jr., 4 pp., illus., November 1963.

SSR-Fish. No. 445 - Factors Influencing the Return of Fall Chinook Salmon (*Oncorhynchus tshawytscha*) to Spring Creek Hatchery, by Charles O. Junge, Jr. and Lloyd A. Phinney, 36 pp., illus., June 1963.

SSR-Fish. No. 448 - Crab Larvae (*Callinectes*), in Plankton Collections from Cruises of M/V Theodore N. Gill, South Atlantic Coast of the United States, 1953-54, by Paul R. Nichols and Peggy M. Keney, 4 pp., illus., October 1963.

SSR-Fish. No. 450 - Molt in the Northern Fur Seal, by Victor B. Schaeffer and Ancel M. Johnson, 38 pp., illus., October 1963.

SSR-Fish. No. 451 - A Method for Tagging Immature Herring, by John E. Watson, 7 pp., 1963.

SSR-Fish. No. 455 - Counts of Red-Tide Organisms *Gymnodinium breve*, and Associated Oceanographic Data from Florida West Coast, 1960-61, by Alexander Dragovich and others, 43 pp., illus., October 1963.

SSR-Fish. No. 473 - Economic Survey of the U. S. Fisheries in the Passamaquoddy Region, 1956-57 by Giulio Pontecorvo and Leslie W. Scattergood, 18 pp., illus., December 1963. The proposed Passamaquoddy Project would be built in an area important for its fisheries. An economic survey of the primary and secondary fisheries of the area has been made. In the primary fishery, the herring was most important; clams and scallops were quite valuable; groundfish, anadromous and catadromous fish, and lobsters were of minor importance. Average value of herring landings in 1948-57 was \$102,000; clams, \$60,000; scallops, \$15,000; and the remaining species all less than \$5,000. In the Project area 24 weirs, 7 stop-seiners, and 16 carriers operated. Detailed information on investments, operating costs, and profits

is presented. The secondary survey covered the processing industry whose 20 plants manufactured \$11 million worth of products.

Annual Report for 1962, Branch of Fishery Management Services, by Edward C. Kinney, 39 pp., illus., 1963.

FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE U. S. BUREAU OF COMMERCIAL FISHERIES, 101 SEASIDE AVE., TERMINAL ISLAND, CALIF.

Fish Vessel Management from "Review of the Japanese Tuna Fishery," by Shoichi Masuda, Translation Series No. 7, 28 pp., processed, February 1964. (Translated from the Japanese, Review of the Japanese Tuna Fishery, Chap. VI, Sec. B, Item 3, pp. 33-50.)

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

Baltimore Monthly Summary--Fishery Products, November and December 1963, 8 pp. ea. (Market News Service, U. S. Fish and Wildlife Service, 103 S. Gay Street, Baltimore, Md. 21202.) Receipts of fresh- and salt-water fish and shellfish at Baltimore by species among states and provinces; total receipts by species and comparisons with previous periods; and wholesale prices for fresh fishery products on the Baltimore market; for the months indicated.

California Fishery Market News Monthly Summary, April, Fishing Information, February 1964, 21 pp., illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6121, Pt. Loma Station, San Diego, Calif. 92100.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the month indicated. Includes information on the U. S. Navy picket vessel albacore catch for 1963. In continuation of the cooperative tagging program which was started in 1960, the U. S. Navy tagged albacore catches at each of its radar early warning surveillance stations off the west coast of the United States. The catch for 1963 was the highest for any one year since inception of the program. A total of 1,041 albacore was taken by the picket fleet. The estimated weight of this catch is about 10,858 pounds, or 5.4 tons. For the fourth consecutive year, distribution and availability of albacore off the U. S. west coast has exhibited a striking correlation with prevailing sea surface temperatures.

French Mexican (West Coast) Shrimp Prices, 1959-1963, 77 pp. (Market News Service, U. S. Fish and Wildlife Service, Rm. 208, Post Office Bldg., San Pedro, Calif. 90901.)

Primary Receivers of Imported Fishery Products and Byproducts at New Orleans, La., 1964, 4 pp. (March 1964. (Market News Service, U. S. Fish and Wildlife Service, Rm. 609, 600 South St., New Orleans, La. 70130.)

Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, February 1964, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Norfolk, 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, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

New England Fisheries--Monthly Summary, January and February 1964, 24 pp. each. (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 months indicated.

New York City's Wholesale Fishery Trade--Monthly Summary--January 1964, 16 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York, N. Y. 10038.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, including both the salt- and fresh-water sections; imports entered at New York customs district; primary wholesalers' selling prices for fresh, frozen, and selected canned fishery products; marketing trends; and landings at Fulton Fish Market docks and Stonington, Conn.; for the month indicated.

Seattle--Landings, Receipts, and Value of Fishery Products, 1963, by Charles M. Reardon, 37 pp., March 1964. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle, Wash. 98104.) Reviews Pacific Northwest fisheries trends and their effect upon Seattle fishery receipts for 1963. Contains statistical tables on landings by U. S. halibut fleet; Seattle's landings and receipts of fishery products; carload and truckload shipments of fishery products by months; imports of canned fishery products; receipts of Alaska canned fish and shellfish; and names, classifications, and approximate standards as used on Seattle Wholesale Market. Also presents data on receipts of fresh and frozen fish and shellfish; fresh and frozen salmon receipts and imports; ex-vessel landings and prices of fish by the otter-trawl fleet; Puget Sound canned salmon pack; and related information.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, February 1964, 6 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.

THE FOLLOWING SERVICE PUBLICATION IS FOR SALE AND IS AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, U. S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402.

The Natural Resources of Ohio, 59 pp., illus., printed, 45 cents, 1963. Includes sections discussing the fish and wildlife resources of Ohio and the program of the U. S. Fish and Wildlife Service in that State.

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 ORGANIZATIONS OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

ALASKA:

Progress Report for the Years 1960-1961-1962, Report No. 12, 82 pp., illus., printed. Alaska Department of Fish and Game, Juneau, Alaska. Reports on accomplishments of the Alaska Department of Fish and Game since statehood was acquired on January 1, 1960. The report discusses the harvest and its values, research, development, regulatory management, support functions and activities, and organization. Appendixes contain data on harvests and values for commercial fisheries, development projects, and publications and films.

ALGAE:

A Culture Method for Marine Diatoms and Flagellates, by B. Wisely and C. Purday, 7 pp., illus., printed. (Reprinted from Tuatara, vol. 11, no. 1, March 1963, pp. 20-26.) Commonwealth Scientific and Industrial Research Organization, Marine Laboratory, Cronulla, N. S. W., Australia.

Some New Records and Range Extensions of Florida Marine Algae, by Harold J. Humm, Contribution no. 504, 11 pp., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 13, no. 4, December 1963, pp. 516-526.) Institute of Marine Science, 1 Rickenbacker Causeway, Miami 49, Fla.

ANCHOVIES:

"Anchovy Fishing Off the Chilean Coast," article, The South African Shipping News and Fishing Industry Review, vol. XIX, no. 1, January 1964, pp. 79, 81, 83, 85, illus., printed, single copy 30¢ (about 45 U. S. cents). Thomson Newspapers, South Africa (Pty.) Ltd., 8th Floor, Trust House, Thibault Sq., Box 80, Cape Town, South Africa Republic. Describes the operations of the Iquique fleet of 60 purse-seiners ranging in size from 45 to 85 feet, of both wood and steel construction; separators in the fish oil plant; factory power transmission; stickwater pumps; and pumps on the jetty.

BARRACUDA:

"New Light on an Ocean Killer," article, New Scientist, vol. 21, no. 375, January 23, 1964, p. 200, illus., printed, single copy 1s. 3d. (about 20 U.S. cents). Cromwell House, Fulwood Pl., High Holborn, London WC1, England.

BEAKED FISH:

The Beaked Fishes of Maryland, by Frank Schwartz, Educational Series No. 54, 4 pp., illus., printed.

Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

BERING SEA:

Peculiarities of Ichthyofauna Distribution in Southern Bering Sea, USSR, by V. P. Shuntov, OTS 63-3157, 20 pp., illus., printed, August 13, 1963, 50 cents. Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

BIOCHEMISTRY:

"Studies on the External Mucous Substance of Fishes. 8--Quantitative Analysis of the Mucus-Polysaccharide from Some Fishes," by N. Enomoto and others, art. Nihon Suisan Gakkai-shi, vol. 29, no. 6, June 1963, pp. 542-545, printed in Japanese with English abstract. Japanese Society of Scientific Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan.

BIOLOGICAL RESEARCH:

Chesapeake Biological Laboratory, Its Facilities, History and Program, Educational Series No. 62, 34 pp., illus., printed, January 1964. Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md. Describes in detail the physical facilities of the Chesapeake Biological Laboratory, Solomons, Md.; the history of the Laboratory since its founding in 1924 by Dr. R. V. Truitt; its present staff and program; accomplishments in both practical and academic studies; and goals for the future.

BRAZIL:

Establishing a Business in Brazil, by Gertrude Healy and William Frohlich, OBR 63-149, 24 pp., printed, 15 cents, December 1963. 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 investments in Brazil have been fostered since 1955 by the existence of provisions encouraging the importation of capital equipment, licensed without exchange cover, as a direct foreign investment. This report discusses Government policy on investment, entry and repatriation of capital, tariff concessions to industry, and business organization. Also covers patents, copyright and trade marks; regulations affecting employment taxation; and United States tax aspects of Brazilian investments.

Foreign Trade Regulations of Brazil, OBR 63-150, 15 pp., printed, 15 cents, December 1963. 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.) Import substitution, protection of newly-established factories, and restriction on the purchase of foreign exchange are the methods used by Brazil to achieve its foreign trade policy aims. The report discusses Brazil's trade policy, import tariff system, sales and other internal taxes, documentation and fees, and labeling and marking requirements. Also covers special customs provisions, nontariff import trade controls, Brazil's export controls, United States foreign trade controls, and diplomatic representation between the two countries.

BYPRODUCTS:

Fish from the Port of Gloucester to Your Feed Mill, by Raymond N. Allen, 4 pp., illus., printed. (Reprinted from Eastern Feed Merchant, March 1960.) New

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land By-Products Corp., 28 Church St., Win-
chester, Mass. The processing of industrial fishery
products and byproducts plays an important role in
regulating fees for poultry, turkeys, and swine.
This article discusses the processing of inedible
portions of ocean perch into fish meal, oil, and solu-
tions.
Also covers briefly the history of the Gloucester
fishing industry and its present operation.

"Ovenstone-INDUS Factory in Chile is Now in Full
Operation," article, The South African Shipping News
Fishing Industry Review, vol. XIX, no. 1, Janu-
ary 1964, pp. 67, 69, 73, 77, illus., printed, single
copy 30¢ (about 45 U. S. cents). Thomson Newspa-
pers, South Africa (Pty.) Ltd., 8th Floor, Trust House,
Bault Sq., Box 80, Cape Town, South Africa Re-
public. Discusses the fish meal and fish body oil
plant at Iquique, Chile, jointly financed and operated
by Ovenstone South West Investments Ltd. and Chile's
Mapania Industrial. Describes the history of the
plant venture and the operations of the plant. Much
of the equipment and even the building itself were
constructed in South-West Africa. Plans are already
being made to double its present capacity of 50 met-
ric tons of fish an hour.

Also covers some provisions which relate or apply
to or affect the taking, processing or use of fish,
mollusks, crustaceans, kelp and other aquatic plants
for commercial purposes. Discusses the organiza-
tion and functions of the Fish and Game Commission
and the Department of Fish and Game. Includes, a-
mong others, a section on commercial fishing which
covers provisions pertaining to particular species of
fish and shellfish--sardines, anchovies, salmon, lob-
ster, crab, abalones, clams and other mollusks, salt-
water and anadromous fish, fresh-water fish, and
fresh-water fish used for bait.

CANADA:

Annual Report 1963, 20 pp., printed, 1963. Fishermen's
Co-Operative Association, Prince Rupert, B. C.,
Canada.

British Columbia Catch Statistics, 1963 (By Area and
Type of Gear), 203 pp., illus., processed, February
5, 1964. Department of Fisheries of Canada, 1155
Robson St., Vancouver 5, B. C., Canada. The thir-
teenth annual report of fish-catch statistics for
British Columbia based on Departmental copies of
sales slips that are completed by all commercial fish
buyers operating within the Province. The report is
divided into three sections: (1) summary of landings
by district and total landed value of all fish; (2) high-
lights of catch statistics--a general review of signifi-
cant events in the salmon fishery and a review for
other species; and (3) detailed district and area
monthly statistics by type of gear. Certain economic,
weather, and conservation factors that have a bearing
on the catch are also reviewed.

Federal-Provincial Conference on Fisheries Develop-
ment, January 20-24, 1964, Background Papers, 107
pp., printed, 1963. Department of Fisheries, Ottawa,
Canada.

Journal of the Fisheries Research Board of Canada,
vol. 20, no. 6, November 1963, 224 pp., illus., printed,
single copy C\$2. Queen's Printer, Ottawa, Canada.
Includes, among others, articles on: "Body Fluid
Regulation in Smolting Atlantic Salmon," by Arthur
H. Houston and Lawrence T. Threadgold; "On the
Problem of Maximum Yield from North Pacific Sock-
eye Salmon Stocks," by Robert R. Parker; "Studies on
the Life History and Ecology of the Bigmouth Buffalo,
Ictiobus cyprinellus (Valenciennes)," by R. P. Johnson;
"Use of Coloured Tags in Fish Population Estimates,"
by G. H. Lawler and G. F. M. Smith; "2-Phenoxye-
thanol as a General Anaesthetic for Sockeye Salmon,"
by H. S. Sehdev, J. R. McBride, and U. H. M. Fager-
lund; "Effects of Formalin on Length and Weight of
Fishes," by Robert R. Parker; "Olfactory Perception
in Migrating Salmon. III--Stimulants for Adult Sock-
eye Salmon (*Oncorhynchus nerka*) in Home Stream
Waters," by U. H. M. Fagerlund and others; "Fecun-
dity of Grand Bank Haddock," by V. M. Hodder; and
"Minke Whales, *Balaenoptera acutorostrata* Lacepede,
of the Western North Atlantic," by D. E. Sergeant.

Journal of the Fisheries Research Board of Canada,
vol. 21, no. 1, January 1964, 215 pp., illus., printed,
single copy C\$2. Queen's Printer, Ottawa, Canada.
Includes, among others, articles on: "Laboratory Ob-
servations on Embryonic Development and Larvae of
the Pacific Cod (*Gadus macrocephalus* Tilesius)," by

CALIFORNIA:

California Fish and Game, vol. 50, no. 1, January 1964,
pp. 1-100, illus., printed, single copy 75 cents. Print-
ing Division, Documents Section, Sacramento, Calif.,
1964. Includes, among others, these articles: "The
Great Shark, *Carcharias ferox* (Risso), in California,"
by Anita E. Daugherty; "An Experimental Study to
Control Oyster Drills in Tomales Bay, California,"
by C. Irwin Haydock; "Underwater Tagging Gun," by
D. E. Ebert; "Notes on the Life History and a De-
scription of the Sharpnose Seaperch, *Phanerodon*
leptocentrus (Jordan and Gilbert)," by J. Gary Smith;
"Landings Estimates of California's Marine Recrea-
tional Salmon Fishery," by Paul T. Jensen; and
"Observations on Spawning Pacific Sardines," by
Robert S. Wolf.

California Marine Fish Catch for 1962, Fish Bul-
letin 125, 44 pp., illus., printed, 1964. Office of
Printing, Documents Section, P. O. Box 1612,
Sacramento, California, 95807. A summary of the
1962 landings of the California commercial fishing
fleet, the imports from other states or foreign coun-
tries, the fresh fish received for processing, and the
catches of the partyboat fleet. Statistical data cover
landings and shipments of leading species, by weight
and value; annual landings and shipments, 1916 through
1962; number of licensed commercial fishermen; num-
ber of registered fishing vessels by length; and origin
of shipments, 1962. Also included are data on origin
of commercial fish landings, 1962; monthly landings
and shipments, 1962, by areas and statewide; value
of landings, annual landings and shipments by areas,
1962; value of landings and shipments by ports and
areas, 1962; partyboat sport catch, 1953-62; and
partyboat bait catch, 1962.

Code of California Fish and Game Code, 1963, compiled
by Monica O'Brien, 292 pp., illus., printed. Depart-
ment of Fish and Game, 722 Capitol Mall, Sacramento,
Calif. 95814. Covers provisions of this code relat-
ing to the taking, processing or use of birds, mammals,
fish, mollusks, crustaceans, amphibians, or reptiles.

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C. R. Forrester; "Lethal Concentrations of Copper and Zinc for Young Atlantic Salmon," by J. B. Sprague; "Movements of Young Atlantic Salmon in a Small Stream," by Richard L. Saunders and John H. Gee; "Ultraviolet Irradiation of Circulating Refrigerated Fish Storage Brines," by J. W. Boyd and B. A. Southcott; "Variations in the Growth of Atlantic Cod (*Gadus morhua* L.)," by A. C. Kohler; "Polyphosphate Treatment of Frozen Cod. I--Protein Extractability Lipid Hydrolysis," by W. J. Dyer and others; "Water-Thawing of Frozen Cod Blocks," by W. A. MacCallum and D. G. Ellis; "Activity Cycles in the Brown Trout (*Salmo trutta* L.). 2--Fish Artificially Fed," by D. R. Swift; and "Observations on Herring Spawning Off Southwest Nova Scotia," by R. A. McKenzie.

Report and Recommendations of the Newfoundland Fisheries Commission to the Government of Newfoundland, April, 1963, 123 pp., printed, 1963. Newfoundland Fisheries Commission, St. John's, Newfoundland, Canada.

33rd Annual Report, 1962, Department of Fisheries, 137 pp., illus., printed, 1963. Queen's Printer and Controller of Stationery, Ottawa, Canada. Presents the functions and activities of the Department of Fisheries for the year 1962, and the financial statements of the Department for the fiscal year 1962/63. Covers in detail the activities of the Department's Conservation and Development Service, Protection Branch's patrol vessels, Inspection Service, Economics Service, Information and Consumer Service, and Industrial Development Service. Also covers the Fishermen's Indemnity Plan, and activities of the Fisheries Prices Support Board, Fisheries Research Board of Canada, international commissions, and special committees. Canada's Pacific and Atlantic Coast and lake fisheries are also discussed. Statistics cover the quantity and value of fish and shellfish landed, exports by type of product, number of fishermen in Canada, and value of vessels and gear. The appendix contains financial statements for fiscal year 1962/63, and statements on fish-culture development.

CANNING:

"Canned Sprats and Herrings as Well as Salmon Substitutes in Oil Flavored with Smoke Extracts," by B. Schobler, article, *Fischerei-Forschung*, vol. 5, no. 4, 1962, pp. 13-15, printed in German. Institut für Hochseefischerei und Fischverarbeitung, Rostock-Marienehe, Germany.

CARP:

Why Destroy the European Carp?, by A. Dunbavin Butcher, Fisheries Circular No. 6, 10 pp., illus., processed, 1962. Fisheries and Wildlife Department, 605 Flinders St., Melbourne C2, Australia.

CHESAPEAKE BAY:

Data from Virginia-Maryland Cooperative Fish Trawl Surveys in Chesapeake Bay, 1957 and 1958, by William H. Massmann and Romeo J. Mansueti, Special Scientific Report No. 42, 21 pp., printed, 1963. Institute of Marine Science, Gloucester Point, Va.

Effects of Civilization on Striped Bass and Other Estuarine Biota in Chesapeake Bay and Tributaries, by Romeo J. Mansueti, Contribution No. 191, 17 pp., illus.,

printed. (Reprinted from *Proceedings of the Gulf and Caribbean Fisheries Institute, Fourteenth Annual Session, November 1961, pp. 110-136.*) Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

CLAMS:

Effect of an Introduced Clam (*CORBICULA*) on Water Quality in the Tennessee River Valley, by Ralph H. Sinclair, 14 pp., illus., processed, 1963. Tennessee Stream Pollution Control Board, Tennessee Department of Public Health, 620 Cordell Hull Bldg., Nashville, Tenn.

COD:

Longlining Experiments for Cod off the East Coast of Newfoundland and Southern Labrador, 1950-1955, by Wilfred Templeman and A. M. Fleming, Fisheries Research Board Bulletin 141, printed, \$1.50. Queen's Printer, Ottawa, Canada.

"Quality Changes in Stored Refrozen Cod Fillets," by W. J. Dyer and others, article, *Bulletin, Institut International du Froid*, vol. 1, Annexe 1962, pp. 1-9, illus., printed in French. Institut International du Froid, 177 Boulevard Malesherbes, Paris XVII, France.

Sedimentation and Aggregation of Cod Myosin: An Appraisal, by J. J. Connell, Torry Memoir No. 14, 11 pp., printed, 1963. (Reprinted from *Biochimica et Biophysica Acta*.) Torry Research Station, Aberdeen, Scotland.

COMMISSIONS:

(Atlantic States Marine Fisheries Commission) Minutes of the 22nd Annual Meeting (September 24-28, 1963, Boston, Mass.), 181 pp., illus., processed, limited distribution. Atlantic States Marine Fisheries Commission, 336 E. College Ave., Tallahassee, Fla., 32301. Covers the minutes of the 22nd annual meeting of the Commission with details of attendance; the first, second, third, and fourth general sessions; and section meetings of the North Atlantic, Middle Atlantic, Chesapeake Bay, and South Atlantic Sections. Also includes accounts of the individual section meetings, resolutions recommended for adoption, and the executive committee and biological committee meetings. Appendices include, among others, reports on the technological committee meeting, Commercial Fisheries Research and Development Act of 1963, developments in Washington on fisheries legislation, seasonal abundance of juvenile pink shrimp in the nursery grounds, and preservation of the fisheries of estuarine waters. Also included in the appendices are reports on legislation and resource conservation, pesticide research, the Cooperative Program for the Certification of Interstate Shellfish Shippers--1963, evaluation of commercial and sport fisheries of the Atlantic Coast, and Soviet fishing activity along the East Coast of the United States during 1963.

COPEPODS:

A Study of the Temperature Factor in Twelve Species of Oceanic Copepods, by Hilary B. Moore and M. S. Foyo, Contribution no. 503, 14 pp., illus., printed. (Reprinted from *Bulletin of Marine Science of the Gulf and Caribbean*, vol. 13, no. 4, December 1961.)

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502-515.) Institute of Marine Science, 1 Rickenbacker Causeway, Miami 49, Fla.

COSTA RICA:

Foreign Trade Regulations of Costa Rica, by Rodney Anderson, OBR 63-155, 8 pp., printed, 15 cents, November 1963. 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.)
 2.) Basic goals of the Central American Common Market, of which Costa Rica is in the process of becoming a member, are: (1) the diversification of production for both the domestic and foreign markets, which also will serve to stabilize Central American exchange earnings as well as the domestic economy; and (2) the development of a broader international market, thereby enabling domestic industries to take advantage of economies of scale. The report presents information on Costa Rica's trade policy, import tariff system, sales and other internal regulations, documentation and fees, and labeling and marking requirements. Also covers special customs provisions, nontariff import trade controls, export controls, United States foreign trade controls, and diplomatic representation between the two countries.

CELESTIAL FISH:

Fishes of the Cheat River Watershed in West Virginia and Pennsylvania. Part II--Observations on Ecological Factors Relating to Distribution, by Frank J. Schwartz and William G. Meredith, Contribution No. 207, 14 pp., illus., printed. (Reprinted from The Ohio Journal of Science, vol. 62, no. 5, November 1962, pp. 260-273.) Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

Biological Population Expansion of the Introduced Fish, ORCONECTES VIRILIS, by Frank J. Schwartz, Robert Rubelmann, and James Allison, Contribution No. 233, 8 pp., illus., printed. (Reprinted from The Ohio Journal of Science, vol. 63, no. 6, November 1963, pp. 266-273.) Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

DEPARTMENT OF THE INTERIOR:

Annual Report 1963, The Secretary of the Interior (For Fiscal Year Ending June 30, 1963), 490 pp., illus., printed, \$1.75, 1964. U. S. Department of the Interior, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402.) The activities of the Department's bureaus and offices, including the U. S. Fish and Wildlife Service (and its two Bureaus--Commercial Fisheries and Sport Fisheries and Wildlife), are summarized in this report.

DOLPHIN:

Studies on Fishing Conditions of the Dolphin, Coryphaena hippurus L., in the Western Region of the Pacific Sea. 8--Comparison of Juvenile Fish Fauna in the Sea and in the Stomachs of Dolphin, by S. Yama, article, Nihon Suisan Gakkai-shi, vol. 29, no. 6, June 1963, pp. 507-513, printed in Japanese with English abstract. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

DRIED FISH:

"Relationship between Relative Humidity and Moisture Absorbed in Dried Fish Products," by M. Takei, article, Nihon Suisan Gakkai-shi, vol. 29, no. 6, June 1963, pp. 525-530, printed in Japanese with English abstract. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

EAST AFRICA:

Annual Report 1962, 20 pp., printed, 1963. East African Marine Fisheries Research Organization, Zanzibar, Zanzibar.

ECOLOGY:

Effects of Winter Water Conditions on Two Species of Marine Fishes, by Frank J. Schwartz, Contribution No. 241, 2 pp., printed. (Reprinted from Ecology, vol. 44, no. 3, Summer 1963, pp. 622-623.) Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

Results and Prospects of Acclimatization of Fish and Invertebrates to Water Bodies of USSR, OTS 63-41075, 21 pp., printed, 50 cents, November 6, 1963. Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

Some Problems on the Reproductive Ecology of Marine Bottom Invertebrates with Pelagic Development, by S. A. Mileikovskii, Translations No. 100, 27 pp., printed, 1963. Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England.

ELECTRIC TRAWLING:

"Elektrotal'ny" (Electric Trawls), by V. A. Shentiakov, article, Rybnoe Khoziaistvo, vol. 38, no. 4, 1962, pp. 47-55, illus., printed. VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U. S. S. R.

EL SALVADOR:

Basic Data on the Economy of El Salvador, by Thomas K. Brewer, OBR 63-145, 24 pp., printed, 15 cents, December 1963. 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.) A report on the economy of El Salvador, smallest of the Latin American Republics. The Government established a Council for Economic Planning and Coordination in May 1962. The aims of the Council are to plan and coordinate the economic activities of the nation toward maximum orderly and continuous growth and to achieve a better standard of living for all the people by broadening opportunities of progress and welfare. The report discusses some general information on geography, climate, government, and population; structure of the economy; agriculture; forestry and mining; industry; power; transportation; communications; finance; foreign trade; economic development; and diplomatic representation between the United States and El Salvador. A section on fishing discusses the shrimp fishery, the fishery for tuna and other species, and the fishing law of 1955. Also included are a number of statistical tables including one giving data on U.S. imports of Salvadoran shrimp, 1957-1962.

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

EUROPEAN FREE TRADE ASSOCIATION:

Third Annual Report of the European Free Trade Association for the Period 1st July, 1962-30th June, 1963, 46 pp., illus., printed, July 1963. Secretariat, European Free Trade Association, Geneva, Switzerland. (Available from the Washington Information Office, European Free Trade Association, 711 14th St. NW., Washington, D. C., 20005.) Discusses principal accomplishments of the EFTA during the year, internal activities of the Association, organization of EFTA, relations with other organizations, economic developments in EFTA in 1962/63, Association agreement with Finland, and amendments and implementation of the EFTA Convention. By the end of 1962 the intra-EFTA tariffs on industrial goods had been reduced by 50 percent. In May 1963, decisions were taken which will mean that by the end of 1966 all obstacles to the free movement within EFTA of goods covered by the Convention will have been abolished. Included in the report is a section on the Association's actions to facilitate an expansion of trade in fish and other marine products which will provide reasonable reciprocity to Member States whose economies depend to a great extent on exports of those products.

FISH DETECTION:

"Measurement of the Dimensions of Fish to Facilitate Calculations of Echo Strength in Acoustic Fish Detection," by R. W. G. Haslett, article, *Journal du Conseil*, vol. 27, 1962, pp. 261-269, illus., printed. Conseil Permanent International Pour l'Exploration de la Mer, Charlottenlund-Slot, Denmark.

FISHERIES RESEARCH:

"Discovery: Britain's Sea-Going Research Laboratory," article, *New Scientist*, vol. 17, no. 323, 1963, pp. 117-179, illus., printed. Harrison, Raison and Co., Ltd., Cromwell House, Fulwood Place, High Holborn, London WC1, England.

International Collaboration in Fisheries Research, by C. E. Lucas, Marine Reprint No. 214, 18 pp., printed, 1963. Department of Agriculture and Fisheries for Scotland, Marine Laboratory, Aberdeen, Scotland.

FISHERY DEVELOPMENT:

"Problems of Fishery Development in Primitive Communities," by R. S. Rack, article, *Proceedings of the Nutrition Society*, vol. 21, no. 1, 1962, pp. 114-120, printed. Cambridge University Press, 200 Euston Road, London NW1, England.

FISH MEAL:

"Fish Waste for Feeding Pigs. II--Comparison of Digestibility and Utilization of Nutrients of Fishmeal and Fish Silage," by C. Lewicki and M. Wojciak, article, *Roczniki Nauk Rolniczych*, vol. 79, 1962, pp. 221-227, printed in Polish with Russian and English summaries. Instytut Rybactwa Srodladowego, Palace Kultury Nauki, 27 Pietro, Pokoj 2719, Poland.

"Hydrolysed Fodder Yeast and Fishmeal in Rations for Pregnant Sows," by I. I. Ismailov, article, *Svinovodstvo*, no. 2, 1962, pp. 36-37, printed in Russian. Akedmiia, Svinovodstvo, Selskokhoviainslvennyi, Nauch-Bibliotek, Moscow, U.S.S.R.

"The New Protein Utilization of Fish Meals Manufactured in Chile for Human and Animal Consumption,"

by G. Donoso and E. Yanez, article, *News Summary International Association of Fish Meal Manufacturers*, no. 10, 1962, pp. 66-76, printed in English with French, German, and Spanish summaries. (Translated from the Spanish, *Nutricion, Bromatologia, Toxicologia, Chile*, vol. 1, no. 2, 1962, pp. 97-105.) International Association of Fish Meal Manufacturers, 70 Wigmore St., London W1, England.

"Nutritional Evaluation of Fish Meals Using Four Short-Term Chick Tests," by L. E. Ousterhout and D. G. Snyder, article, *Poultry Science*, vol. 41, 1962, pp. 1753-1757, printed. Poultry Science Association, Ohio State University, Columbus 10, Ohio.

"Protein Quality of Different Types of Herring-Meal in Balance Experiments With Growing Pigs," by T. Homb, article, *Meldinger fra Norges Landbruksforskning*, vol. 41, no. 5, 1962, p. 31, printed in Norwegian with English Summary. Meldinger fra SSF, Bergen, Norway.

FISH OILS:

"Epoxidation of Some Marine Animal Oils and Properties of the Epoxides as Plasticizers," by S. Komori and others, article, *Journal, Chemical Society of Japan*, vol. 64, 1961, pp. 1203-1208, printed. Surugadai-Kauda Chiyoda-Ku 5, 1-Chome, Tokyo, Japan.

FISH POPULATIONS:

Role of Youth in Creating Abundance of Fish, USSR, by A. Isayev, OTS 63-31507, 6 pp., printed, 50 cents. August 12, 1963. Office of Technical Services, U.S. Department of Commerce, Washington, D. C., 20230.

FISH PROTEIN CONCENTRATE:

"Effect of Supplementing Sorghum and Groundnut Diet with Fish Flour or Pure Amino Acids," by J. Adriès, R. Jacquot and M. Forestier, article, *Annales de la Nutrition et de l'Alimentation*, vol. 15, 1961, pp. 227-237, printed in French. Centre National de la Recherche Scientifique, 13 quai Anatole-France, Paris VII, France.

A Report to the Fishing Industry on an Improved Method of Producing Fish Protein Concentrate, by H. E. Power, New Series Circular No. 10, 2 pp., processed September 21, 1962. Fisheries Research Board of Canada, Sir Charles Tupper Bldg., Riverside Dr., Ottawa, Canada.

FISH SAUSAGE:

"Produksjonen av Fiskepølser in Japan" (Production of Fish Sausages in Japan), article, *Tidsskrift for Hermetikindustri*, vol. 49, no. 12, December 1963, pp. 489-492, illus., printed in Norwegian. Norske Hermetikfabrikers Landsforening, Stavanger, Norway.

FISH SILAGE:

"Fish Silage as a Protein Feed for Fattening Pigs," by L. V. Braunschweig and H. Gorlitz, article, *Deutsche Landwirtschaft*, vol. 12, 1961, pp. 461-462, printed in German. Deutscher Bauernverlag, Reinhard-str. 14, Berlin NW7, Germany.

"Fish Silage--A Valuable Animal Protein Feed," by G. Schellner, H. Trautmann, and G. Linke, article, *Jahresbericht Arbeitsgemeinschaft Futterungsberatung*, vol. 3, 1960/61, pp. 202-209, printed in German. Futterungsberatungsstelle, Dresden A 1, Germany.

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

FOOD AND AGRICULTURE ORGANIZATION:

World Food Congress, Technical Commission, Agenda Item I.C.2, by F. O. Otorubio, Commission Paper: CP/63/CP/I.C./2b, 9 pp., printed, Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

The Food and Agriculture Organization has published reports describing that Agency's activities under the Expanded Program for Technical Assistance for developing fisheries of many countries. These reports have been processed only for limited distribution to government libraries, and universities. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

Informe al Gobierno del Ecuador sobre la Biología del Camarón (Report to the Government of Ecuador on the Biology of the Shrimp), by Robert W. Ellis, Report No. 1537, 51 pp., illus., processed in March, 1962.

Informe al Gobierno de Cuba sobre la Encuesta Acerca de Pesquerías (Report to the Government of Cuba on Catches in Relation to the Fisheries), by George C. Brown, FAO Report No. 1597, 100 pp., 1963.

Report to the Government of Nigeria on Improvements in Bulk Smoking of Bonga in Western Nigeria, by Stanislaw Piatek, FAO Report No. 1756, 68 pp., 1963.

FOOD PROCESSING:

Food Processing Operations--Their Management, Materials, and Methods, by J. L. Heid and Edward A. Joslyn, vol. 2, 605 pp., illus., printed, \$19.75 domestic, \$20.75 foreign. The Avon Fishing Co., Inc., P. O. Box 388, Westport, Conn. This is the second volume of a series of books which summarizes the numerous factors involved in successful food-processing operations--from the source of raw material to the sales outlet. Whereas volume 1 covers management techniques, raw material facilities, and utilities, volume 2 contains comprehensive summaries by specialists of their ideas, know-how, and their skills on processing, packaging, and legal regulations. The information is written in such a manner as to be of maximum use in plant processing food products. Volume 2 contains 17 chapters. One chapter deals entirely with federal and state regulation of processed foods. There are chapters on cattle, hogs, and sheep; poultry production and processing; fats and oils; use of acids in food processing; seasoning for the food manufacturer; vitamins as ingredients in food processing; preservatives and antioxidants; enzymes in food processing; metal containers for food; glass containers; flexible packaging in food processing; corrugated and solid fiber boxes; food processing by heat sterilization; processing by fermentation; and food processing by drying and dehydration. With food processing becoming more complex, this type of book will be considerably in guiding management through some of the many complexities that have developed. With reference to fish processing, there is information on processing in frozen fish, oils for fish canning, and acids in fish. Each chapter contains a selected and adequate bibliography. The book has a very good index. Professors and others interested in food products

will find much that will be of value and interest in both volumes 1 and 2. (Also see Commercial Fisheries Review, August 1963, p. 135, for review of volume 1.)

--Joseph Pileggi

FRANCE:

"Les Ports du Nord Vont se Grouper en un Comité Régional des Pêches Maritimes" (The Northern Ports Want to Group Themselves into a Regional Committee of Marine Fisheries), article, France Pêche, no. 80, January 1964, pp. 41-42, printed in French. France Pêche, Boite Postale 179, Lorient, France.

FREEZING:

Freezing of Fish in Vertical Plate Freezers--Effect of Loading Procedure, by J. H. Merritt, Torry Memoir No. 150, 7 pp., printed, 1963. (Reprinted from World Fishing, September 1963.) Torry Research Station, Aberdeen, Scotland.

Freezing Meat and Fish in the Home, Home and Garden Bulletin No. 93, 23 pp., illus., printed, 20 cents, December 1963. Animal Husbandry Research Division and Human Nutrition Research Division, Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402.) As an excellent method of preserving meat and fish, freezing can be done simply and effectively at home if the products are carefully selected, prepared, and packaged; and home freezing equipment freezes quickly at 0° F. or lower, and maintains those temperatures for storage of frozen products. This booklet explains general freezing procedures; cutting and boning methods for meat; meat yields; fish selection, and cleaning and dressing; wrapping, freezing, and storing; storage periods; and thawing meats and fish.

"Immersion Freezing," by R. C. Webster and E. J. Benson, article, Food in Canada, vol. 22, no. 11, 1962, pp. 27-30, 33, printed. Maclean-Hunter Publishing Co. Ltd., 481 University Ave., Toronto 2, Canada.

FROZEN FISH:

"On the Deterioration of Frozen Fish during Storage," by J. Nishimoto, article, Memoirs of the Faculty of Fisheries, Kagoshima University, vol. 11, no. 1, 1962, pp. 41-64, illus., printed in Japanese with English summary. Faculty of Fisheries, Kagoshima University, Shimoarata-Machi, Kagoshima, Japan.

FROZEN FOODS:

Consumer Practices in the Handling and Storing of Commercially Frozen Foods, Two Cities, Two Seasons, by Ruth A. Restrom, Elizabeth Davenport, and Janet Murray, Home Economics Research Report No. 23, 29 pp., illus., printed, 20 cents, September 1963. Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402.) The research reported in this publication was undertaken to find out how frozen foods are handled and stored in the home in order to ascertain to what extent these practices might affect the quality of the food. In order to obtain data for practical use in

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educational and marketing programs, surveys of approximately 300 households were made in each of 2 cities at 2 seasons of the year. Homemakers in representative samples of families in Baltimore, Md., were interviewed in the summer of 1959 and the winter of 1960, and in Indianapolis, Ind., in the summer of 1960 and the winter of 1961. In both Baltimore and Indianapolis, data on the purchase and use of 3 groups of frozen foods--fruits, juices, and vegetables--were obtained for the 7-day period before the interview. In Indianapolis, the survey was broadened by the addition of 2 other types of frozen foods--baked goods and a meat group comprising meat, poultry, and fish or seafood--frozen plain, breaded, or with sauces--and meat dinners. From data gathered and evaluated in this study, it would appear that, in the great majority of cases, household practices alone would not be a determining factor in serious quality deterioration of frozen foods.

FUR SEALS:

Report on Canadian Pelagic Fur Seal Research in 1963, by G. C. Pike, Manuscript Report Series (Biological) No. 761, 29 pp., printed, 1963. Fisheries Research Board of Canada, Biological Station, Nanaimo, B. C., Canada.

GENERAL:

Weltfischwirtschaft (World Fisheries), by Wolfgang Krone, 134 pp., illus., printed 1963, DM 32 (about US\$8). Westliche Berliner Verlagsgesellschaft Heenemann KG, 102 Umlandstrasse, Berlin 31, Germany. This book is based on the author's doctoral thesis, titled "The Fishing Industries' Contribution to Human Nutrition," and deals with the contribution fisheries can make to the Freedom from Hunger Campaign, and the future development prospects of the fishing industry on a world-wide scale. Emphasis is placed on the economic implications of fisheries development; however, both biological and technical aspects influencing fisheries are seen in close connection with the economic ones. To study the interrelation between biological, technical, and economic factors is, in fact, one of the main objects of the book. The author pleads for a more intimate collaboration among biologists, technicians, and economists in fisheries, which would certainly facilitate the solution of many problems in world fisheries. After surveying the basic biological and natural conditions of fisheries, the author discusses in a very interesting way the economic problems involved in optimum utilization of fishery resources of the sea. In view of the threat of overfishing in some areas and the ensuing regulatory measures, these problems deserve increasing attention. The author stresses that increasing care should be taken of the natural fish stock; regulatory measures should, however, take economic effects into account, and possible means of achieving those aims are described. A detailed survey of fish production, international trade and the fisheries' contribution to national income, export proceeds and human nutrition showing the economic importance of the fishing industry in different countries ends the first half of the book. The second half deals with the possibilities of achieving an increased world fish production and consumption. The author, who is optimistic as regards the biological and technical aspects of increasing fish production in developing countries, examines the favorable ef-

fects of fisheries projects on national income, employment, balance of payments, and other sectors of the economy, to prove that fisheries could make an important contribution to over-all economic progress in those countries. The practical problems encountered at any stage from the producer of fish to the retailer, and the possible ways and means of solving them, are dealt with in the conclusion of the book. The author has selected adequate statistics for his study. The book would be interesting and stimulating to people engaged, not only in fisheries but in economics and development policies in general.

--A. Holm, Fisheries Division, O.E.C.D.

GERMAN FEDERAL REPUBLIC:

Jahresbericht über die Deutsche Fischwirtschaft, 1962/63 (Annual Report on German Fisheries, 1962/63) issued by the Federal Ministry of Food, Agriculture and Forestry in cooperation with the Federal Statistical Office, 296 pp., illus., printed in German with English table of contents and summaries, October 1963. (Available from Gebr. Mann, Hauptstrasse 26, Berlin 62, Germany.) A review covering all phases of the German fisheries in 1961/62. Part I contains information on fishery policy, legislation, the sea and coastal fisheries as well as the fish supply, the German fishing fleet, biological-statistical report on the German deep-sea fishery and foreign trade in fishery products. Part II includes information on cruises on the fishery protection and fishery research vessels, the fishing industry and the Seamen's Vocational Association, work of the German Scientific Commission for the Exploration of the Sea, fishery research, and technical assistance program of the Federal Republic of Germany for foreign fisheries. Part III presents data on the cutter deep sea and coastal fisheries, fresh-water fisheries, and the fish meal and oil industry. Part IV gives data on foreign fisheries and whaling.

INDIA:

8th Annual Report, 1962-63, Gujarat Fisheries Central Co-Operative Association Ltd., Ahmedabad-9, India, 50 pp., illus., printed. Gujarat Fisheries Central Co-Operative Association Ltd., Ahmedabad 9, India.

INTERNATIONAL COMMISSIONS:

Annual Report for the Year 1962, 149 pp., printed, 1963. The Inter-American Tropical Tuna Commission, La Jolla, Calif.

International Commission for the Northwest Atlantic Fisheries, Annual Proceedings for the Year 1962-63, vol. 13, 46 pp., printed, 1963. International Commission for the Northwest Atlantic Fisheries, Bedford Institute of Oceanography, Dartmouth, N.S., Canada. Presents an account of the activities of the Commission's Secretariat during the year ending June 30, 1963, including financial statements; a report of the Thirteenth Annual Meeting held June 3-7, 1963, in Halifax, N.S., Canada; and summaries of research during 1962 by Subareas.

IRRADIATION PRESERVATION:

Food Preservation by Irradiation, no. SB. 403, 11 pp., processed, 1962, Office of Technical Services, U.S. Department of Commerce, Washington, D. C. 20234

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"Radiation Nears Reality," by Joseph W. Slavin and Miller, article, Food Engineering, January 1964, pp. 92, 94, 98, illus., printed, Chilton Co., Chestnut St., Philadelphia 39, Pa. Commercial use of ionizing radiation for the preservation of fishery products was brought one step closer to reality with the recent start of construction of a Marine Products Development Irradiator in Gloucester, Mass. Radiation pasteurization offers promise as a means of extending the shelf life of fresh seafood. Investigations are being conducted on groundfish fillets and shell clam meats at the Massachusetts Institute of Technology and the Bureau of Commercial Fisheries Technological Laboratory in Gloucester. The Atomic Energy Commission is sponsoring research on other fishery products. The Gloucester laboratory is now studying the effects of pasteurizing doses of radiation on the quality of ocean perch and cod and the volatile compounds that comprise the flavor and odor of seafood. They are also looking into new methods of packaging irradiated products. The new irradiator at Gloucester will be used to obtain information on the commercial feasibility and cost of processing and distributing irradiated seafoods.

JAPAN:

Annals of the Faculty of Fisheries, Kagoshima University, vol. 12, no. 1, October 1963, 76 pp., illus., printed in Japanese with English summaries. The Faculty of Fisheries, Kagoshima University, Kagoshima, Japan. Includes, among others, these articles: "Changes of the Oil Contained in Dried Fish Muscle. 1--The Effect of Packaging on the Changes of Oil," by Shigenobu Oyama; "Preventive Effect of Phosphate on the Drip-Formation of the Thawed Fish Flesh," by Fuyuo Ohta and Jun-ichi Nishimoto; "Studies on the Fishing Gear and the Fishing Efficiency of the Two-Boat Trawl Fishery (Preliminary Report). Some Problems on Construction of the Net of Manila Twine," by Nobio Higo; "The Culture of Uni-Cellular Red Algae, Porphyridium cruentum," by Koji Nozawa; and "Studies on Some Marine Algae in Southern Japan. IV," by Takesi Tanaka.

Present Status and Problems in the Water Policy for Fisheries, by Motokichi Morisawa, 42 pp., illus., printed in Japanese. Japan Fisheries Resources Association, Shiba Nishikubo Sakuragawa-cho 24, Tokyo, Japan.

Statistical Data on Frozen Fishery Products, Fiscal Year 1962, 20 pp., processed in Japanese. Japan Frozen Food Exporters' Association, Tokyo, Japan. Presents statistical tables showing data on frozen fish exports in 1962; frozen tuna export validations: (1) by country of destination (January-December 1962 and for fiscal year April 1962-March 1963) and (2) to United States from domestic port and area of transshipment; and frozen tuna exports and prices to Canada, Italy, Yugoslavia, and other countries. Also contains data on frozen broadbill groundfish export validations and prices to United States; miscellaneous frozen fish and shellfish exports to United States; and miscellaneous frozen fish and shellfish exports to other countries (except United States).

Symposium on the Bottom Trawl Fisheries in the East China and Yellow Seas, article, Nihon Suisan

Gakkai-shi, vol. 29, no. 6, June 1963, pp. 546-629, printed in Japanese. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

KOREA:

1963 Agricultural Year Book, 613 pp., illus., printed in Korean and English. The National Agricultural Co-Operatives Federation, Seoul, Korea. Includes a section of statistical tables showing data on numbers of fishing vessels, marine products, fishery population, holdings of fishing boats by district, products of aquatic culture, and processed marine products. Also includes data on imports and exports of fishery products.

LAKE TROUT:

Save the Lake Trout?, Fish Division Pamphlet No. 33, 4 pp., processed, March 1961. Fish Division, Michigan Department of Conservation, Lansing 26, Mich.

MACKEREL:

"Changes of Amino Acid Contents during Fermentation of Mackerel Muscle. 1--Examination of Assay Method for Free Amino Acids in Fresh and Fermented Muscle. 2--Amino Acid Contents of Autolysed and Fermented Ordinary Muscle of Mackerel," by N. Hoshino, article, Shokuryo Kenkyujo Kenkyu Hokoku, vol. 16, February 1962, pp. 39-46, printed in Japanese with English abstract. Food Research Institute, Fukagawa Kenkyujo, Hama Zono Cho, Koto-Ku, Tokyo, Japan.

MARINE BIOLOGY:

Books on Aquatic Biology; Fresh-Water and Marine; Prepared for the Biological Sciences Communications Project, by Carl R. Keeler, 45 pp., printed, 1963. George Washington University, Washington, D. C.

MARINE MAMMALS:

"Conservation Practices for Marine Mammals," article, Trade News, vol. 16, no. 7, January 1964, pp. 9-10, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada.

Marine Mammal Investigations, by John J. Burns and Loren W. Croxton, 39 pp., illus., processed, June 1963. Alaska Department of Fish and Game, Juneau, Alaska.

MEGRIM:

The Food of the Megrim, by Bennet B. Rae, Marine Research 1963 No. 3, 23 pp., printed. Department of Agriculture and Fisheries for Scotland, Aberdeen, Scotland.

MULLET:

Synopsis of Biological Data on the Grey Mullet (MUGIL CEPHALUS Linnaeus) 1758, by J. M. Thomson, Fisheries Synopsis No. 1, 1 vol., printed, 1963. Commonwealth Scientific and Industrial Research Organization, 314 Albert St., E. Melbourne C2, Australia.

NATURAL RESOURCES:

Natural Resources and International Development, edited by Marion Clawson, 473 pp., printed, 1964, \$7.50. The Johns Hopkins Press, Baltimore, Md., 21218. The relationship between natural resources

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and economic growth in broad regions of the world; the interdependence between resources and the techniques, policies, and institutions that control their usability; and the contribution that wise resource management can make to the economic growth of a nation is what this book is about. Samplings of some of the best thought on the conservation, development, and use of natural resources as they relate to economic growth on a world scale are presented in ten essays (presented at the 1963 Forum of Resources for the Future, Inc.). Of particular interest to members of and all those interested in the fishery industries is the essay on "Food and the World Fisheries Situation," by Anthony D. Scott, Department of Economics and Political Science, University of British Columbia. In the very first sentence the author points out: "The contribution that fisheries development can make to international economic development is probably small compared with that to be expected from agriculture and mining. But the word 'probably' is important, for the rational exploitation of the seas is still in its infancy." In the second paragraph the author makes the further qualification: "We are just beginning to assess the seas' full potential productivity." Then the author goes on to point out that when better developed the seas will be an important source of food, and that this resource can be relied upon to expand and continue. The essay is concerned with this aspect of international economic development. Covered in the essay are the growth of demand; supply from the standpoint of indicated productivity of the ocean and potential productivity (discusses fishing gear and equipment); and increasing the productivity of the oceans. The essay concludes with a discussion of the biology and economics of overfishing and patterns of international cooperation. Of the ten essays in the book, three are on commodities--fisheries, agriculture, and oil; four focus on resource problems in regions of the world (Western Europe, the Soviet Union, Africa, and Latin America); and the final three concern the potentialities and hazards of foreign investment for resource development, the terms of trade between raw material exporting and importing countries, and the transfer of knowledge and capital across national boundaries. The book is adequately indexed. Considering the interest in conservation today, this is a timely and thought-provoking book.

--Joseph Pileggi

NORTHEAST ATLANTIC:

North-East Atlantic Fisheries Convention, London, January 24, 1959 (The United Kingdom instrument of ratification was deposited on August 27, 1959, and the Convention entered into force on June 27, 1963), Treaty Series No. 68, printed, 30 cents, 1963. British Information Services, 845 3rd Ave., New York 22, N. Y.

NORTHWEST ATLANTIC FISHERIES:

Northwest Atlantic Fisheries, Declaration of Understanding between United States and Other Governments Regarding Convention of February 8, 1949, Signed Washington April 24, 1961, 7 pp., printed, 5 cents, 1963. U. S. Department of State, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402.)

OCEANOGRAPHY:

Data from the First Plenum of the Section on Underwater Research, Oceanographic Commission, OTS 63-31934, 77 pp., printed, \$2, October 14, 1963. (Translated from the Russian, *Okeanograficheskaya Komissiya, Trudy*, vol. 14, 1962, pp. 5-6, 76-107, 116-130.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

Journal du Conseil, vol. XXVIII, no.2, September 1963, 156 pp., illus., printed in French and English, single copy Kr. 16 (about US\$2.30.) Andr. Fred. Host & S. Bredgade, Copenhagen, Denmark. Includes, among others, articles on: "The Food of the Irish Sea Herring in 1961 and 1962," by A. L. Rice; "Incidence of Coccidiosis in Scottish Herring," by Z. Kabata; "Influence of Egg Size on Herring Larvae (*Clupea harengus* L.)," by J. H. S. Blaxter and G. Hempel; "On the Relative Fishing Power of Dutch Trawlers," by J. J. Zijlstra and J. F. deVeen; "Marine Fish Culture in Britain. IV--High Survivals of Metamorphosing Plaice during Salinity Experiments in Open Circulation at Port Erin, Isle of Man, 1961," by J. E. Shelbourne; "Marine Fish Culture in Britain. V--An Electronic Device for Counting the Nauplii of *Artemia salina* L.," by R. B. Mitson; "Preliminary Observations on the Relationship between Growth, Spawning and Condition in Experimental Colonies of *Venus mercenaria* L.," by A. D. Ansell and F. A. Loosmore; and "Studies on the Age and Growth, Fecundity and Spawning of *Osteogobius militaris* (Linn.)," by V. Rayappa Pantulu.

Oceanographical Observations in the Indian Ocean in 1961, H.M.A.S. DIAMANTINA (Cruise Dm 2/61), Oceanographical Cruise Report No. 9, 172 pp., illus., processed, 1963. Division of Fisheries and Oceanography, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia.

Oceanographical Observations in the Pacific Ocean in 1961, H.M.A.S. GASCOYNE (Cruise G 1/61), Oceanographical Cruise Report No. 8, 147 pp., illus., processed, 1963. Division of Fisheries and Oceanography, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia.

"Oceanography," article, Current Affairs Bulletin, vol. 32, no. 13, November 11, 1963, pp. 195-208, illus., printed, single copy 6d. (about 10 U. S. cents). Current Affairs Bulletin, The University of Sydney, Sydney, Australia.

OCEAN PERCH:

"Identity of Larval Redfish Populations in the North Atlantic," by G.T.D. Henderson, article, Nature, vol. 201, no. 4917, January 25, 1964, p. 419, illus., printed, St. Martin's Press, Inc., 175 Fifth Ave., New York 10, N. Y.

OCTOPUS:

"Notes on the Laboratory Culture of the Octopus Larvae," by K. Itami and others, article, Nihon Suisan Gakkai-shi, vol. 29, no. 6, June 1963, pp. 514-520, printed in Japanese with English abstract, Japanese Society of Scientific Fisheries, Shiba-Kaigandori Minato-ku, Tokyo, Japan.

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

ORIGIN:

Biennial Report, July 1, 1960-June 30, 1962, to the Governor and the Fifty-Second Legislative Assembly, 134 pp., illus., printed, limited distribution. Fish Commission of Oregon, 307 State Office Bldg., 13 SW. 5th Ave., Portland 1, Oreg. Discusses the accomplishments of the Oregon Fish Commission Research Division, including albacore investigations, otter trawl investigations, hatchery investigations, Columbia River Fishery Development Program, coastal rivers investigations, salmon analysis investigation, fish passage research, salmon investigations, and shellfish investigations. Also discusses the Commission's work in aquaculture, engineering, development of water resources, and information and education. Includes statistical tables showing data on liberations of salmon into Oregon streams, egg taking at hatcheries, licenses issued, fish landings, and law enforcement.

History of the Oregon Trawl Fishery, 1884-1961, by George Y. Harry, Jr. and Alfred R. Morgan, 22 pp., illus., printed. (Reprinted from Research Briefs, Fish Commission of Oregon, vol. 9, no. 1, May 1963, pp. 2-26.) Fish Commission of Oregon, 307 State Office Bldg., 1400 SW. 5th Ave., Portland 1, Oreg. Trawl records show that between 1884 and World War II several attempts were made to start a trawl fishery but it did not flourish until the war created demand for bottomfish. Since the war the Oregon fishery has been maintained at various levels of production. Many gear improvements have been introduced. The average size of fishing vessels has increased and larger engines, heavier otter doors, drums with greater cable capacity have been installed. More instrumentation has been added to the trawl fisherman. Some boats have abandoned ice for refrigeration in favor of chilled sea water tanks. Trawlers have tended to move farther from home ports although fishing trips are still on average about 3 to 5 days. The time per tow has increased in recent years to 3 or 4 hours on some grounds. Landings have fluctuated in response to market conditions. The peak trawl fishery in numbers of tons and pounds landed occurred during World War II followed by a severe decline in landings in the 1950's and slow recovery in the late 1950's.

OYSTERS:

"Historical Notes on the Oyster Fisheries of Ireland", by Arthur E. J. Went, article, Proceedings of the Irish Academy, vol. 62, sec. C, no. 7, August 1962, pp. 195-223, illus., printed, 3s. (about 45 U.S. cents). Hodges, Figgis and Co., Ltd., 6 Dawson St., Dublin, Ireland.

Statistics on Oysters in Relation to the Oil Industry, by Mackin and S. H. Hopkins, 319 pp., printed, Fish Commission of Oregon, Institute of Marine Science, Port Aransas, Texas.

PACIFIC OCEAN:

Principal Hydrological Features of the Pacific Ocean, by A. M. Muromtsev, OTS 63-11065, 421 pp., illus., processed, 1963. (Translated from the Russian, Osnovnye Cherty Gidrologii Tikhogo Okeana.) U. S. Department of Commerce, Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

PACKAGING:

"Recent Experiments with the Packaging of Unfrozen and Smoked Fish," by J. M. Shewan and G. Hobbs, article, Fishing News, no. 2585, 1963, pp. 7, 12, printed. A. J. Highway Publications Ltd., 110 Fleet Street, London EC4, England.

PARASITES:

The Incidence of Larvae of PORROCAECUM DECIPIENS in the Flesh of Cod, by Bennet B. Rae, Marine Research 1963 No. 2, 28 pp., printed. Department of Agriculture and Fisheries for Scotland, Aberdeen, Scotland.

PEARL CULTURE:

"Growing Pearl Oysters in Tanks," by Edith Landau, article, New Scientist, vol. 20, no. 368, December 5, 1963, pp. 618-619, illus., printed, single copy 1s. (about 15 U.S. cents). Cromwell House, Fulwood Pl., High Holborn, London WC1, England. The cultivation of pearl oysters in water tanks, conducted in 1963 in the National Pearl Research Laboratory at Kashikojima, Japan, opens the possibility of liberating pearl cultivation from such hazards as typhoons and tidal waves. Pearl oysters (Pinctada martensii Dunker) grew in 6 culture tanks of aerated sea water and were fed daily on a diet of diatoms. Researchers believe that the promising results of their trials warrant a more comprehensive project aimed at improving culture equipment and the feeding mechanics, as well as comparing growth rates achieved with different nutrients.

PERU:

Peruvian Fisheries Number - 1963 - of the Peruvian Times, October 28, 1963, 59 pp., illus., printed, s/. 25.00 (about 93 U. S. cents). Peruvian Times, S. A., Jiron Carabaya 928, Office 304, P. O. Box 531, Lima, Peru. A special annual issue devoted to the fisheries of Peru and containing articles on the expansion of the Peruvian fisheries industry; 1962 exports of fishery products; anchovy fishery off Peru; IV Annual Conference of the International Association of Fish Meal Manufacturers, held at Lima, October 28-31, 1963; declaration of Peru of 200-mile territorial waters; regulation of fishing permits for foreign vessels; statistical tables giving data on landings and exports of fishery products, 1957-1962; directory of the National Fisheries Association; and fishing vessels at Callao. Also presents information on fish-meal reduction plants, a trip in a purse seiner, malnutrition in Peru, a visit to the fishing villages of Sechura Bay, aerial fish-spotting, land-based whaling station near Paita, activities of the Peruvian Fisheries Service, the Marine Resources Research Institute, the origin of trout hatcheries in Peru, and the Cabo Blanco big game fishing.

"La Pesca in Peru--Como se Desarrollo una Gran Industria Nacional" (Peruvian Fishing Industry--How a Great National Industry was Developed), by Roberto Lecca Pardo, article, Puntal, vol. X, no. 116, November 1963, pp. 4-7, illus., printed in Spanish. Puntal, Apartado de Correos 316, Alicante, Spain.

PHYSIOLOGY:

"A New Apparatus for Measuring the Course of Rigor Mortis in Fish and Mammalian Muscles," by G. N. Karlsruhe, article, Fleischwirtschaft, vol. 15, no. 1,

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1963, pp. 21-23, illus., printed in German with English, French, Italian and Spanish summaries. Verlagshaus Sponholz, 14/16 Neue Mainzerstrasse, Frankfurt a/M, Germany.

PLANKTON:

The Net Phytoplankton Taken in Virginia Tidal Waters January-December 1962, by Richard A. Mulford, Special Scientific Report No. 43, 22 pp., illus., printed, 1963. Institute of Marine Science, Gloucester Point, Va.

POND FISHERIES:

Hydrobiological Studies on the Artificially Constructed Ponds ("Tameike" Ponds) of Japan, by Toshihiko Mizuno, 125 pp., printed, 1961. (Reprinted from Japanese Journal of Limnology, vol. 22, 1961.) Otsu Hydrobiological Station, Kyoto, Japan.

PORPOISES:

"Iz Opyta Promyslovogo Lova Del'finov" (On the Experience Gained in Commercial Fishing for Porpoises), by A. I. Petrenko, article, Rybnoe Khoziaistvo, vol. 38, no. 3, 1962, pp. 44-48, illus., printed in Russian. VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U.S.S.R.

PORTUGAL:

"Artes de Pesca na Area Maritima do Sul" (The Art of Fishing in the Maritime Area of the South), by Jorge Teles de Faria Correia Bastos, article, Boletim da Pesca, vol. XV, no. 81, December 1963, pp. 11-69, illus., printed in Portuguese. Gabinete de Estudos das Pescas, R. S. Bento, 644, 4^o Esq., Lisbon, Portugal.

"La Pesca en Portugal en 1962 y la Industrial Conservera" (The Fishery in Portugal in 1962 and the Canning Industry), article, Boletim de Informacion del Sindicato Nacional de la Pesca, nos. 62-63, November-December 1963, pp. 10-11 printed in Spanish. Sindicato Nacional de la Pesca, Paseo del Prado, 18-20, 6^a Planta, Madrid, Spain.

SALMON:

Annual Fish Passage Report, North Pacific Division, Bonneville, The Dalles, McNary and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1962, 73 pp., illus., processed, 1963. U. S. Army Engineer District, Portland, Oreg.

Annual Report, 1962, 55 pp., printed, 1963. Skeena Salmon Management Committee, Fisheries Research Board of Canada, Biological Station, Nanaimo, B. C., Canada.

"Barge Block to Save Salmon," article, Outdoor California, vol. 25, no. 2, February 1964, pp. 3-6, illus., printed. Documents Section, Printing Division, P. O. Box 1612, Sacramento, Calif., 95807. Describes the partial blocking of the San Joaquin River with a 130-foot barge loaded with 600 tons of sand to aid in breaking up pollution blocks. Also discusses the accomplishments of the California Department of Fish and Game in salmon conservation in the California Central Valley.

On the Biology of Primorsky Pink Salmon, ONCORHYNCHUS CORBUSCHA (Walbaum), by O. V. Vasil-

enko-Lukina, Circular 197, 8 pp., illus., processed July 1963. (Translated from the Russian, Voprosy Ikhtologii, vol. 2, no. 4, 1962, pp. 604-608.) Fisheries Research Institute, College of Fisheries, University of Washington, Seattle 5, Wash.

Data Report, Salmon Tagging Experiments in Prince William Sound 1960-1961, by Wallace Noerenberg and David G. Savoie, Informational Leaflet 28, 38 pp., illus., processed, December 1963. Alaska Department of Fish and Game, Subport Bldg., Juneau, Alaska.

New Data on the Migration of Pink Salmon in the Sakhalin Area, by P. A. Dvinnin, OTS 63-11103, 4 pp., illus., processed, 1963. (Translated from the Russian, Rybnoe Khoziaistvo, vol. 34, no. 1, 1958, pp. 12-15.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

"Questions and Answers about Atlantic Salmon," by Paul F. Elson, article, The Atlantic Salmon Journal, no. 3, December 1963, pp. 8-9, illus., printed. The Atlantic Salmon Association, 1559 McGregor St., Montreal 25, Canada.

"Restoration of a North Shore Salmon River," by C. Smith, article, The Atlantic Salmon Journal, no. 3, December 1963, pp. 3-7, illus., printed. The Atlantic Salmon Association, 1559 McGregor St., Montreal 25, Canada. Discusses salmon stock rehabilitation in the Great Watchichou River, in the Province of Quebec about 500 miles northeast of Quebec City and 175 miles from Seven Islands.

"The Salmon Fishery in the U.S.S.R.," by Boris Tasyuk, article, The Atlantic Salmon Journal, no. 3, December 1963, pp. 18-20, illus., printed. The Atlantic Salmon Association, 1559 McGregor St., Montreal 25, Canada. Discusses measures taken in the Soviet Far East to protect spawning salmon; field stations concerned with salmon escapement and research work in Kamchatka, Sakhalin, the Amur region, the Okhotsk coast, and the Maritime region; and salmon river improvement. Also covers the reduced salmon escapement in many rivers; artificial spawning of salmon in hatcheries; artificial feeding of salmon fingerlings; and the need of regulation of commercial fishing in order to provide sufficient escapement to allow the improvement of Pacific salmon stocks.

Salmon of the North Pacific Ocean. Part II--Review of Oceanography of the Subarctic Pacific Region, by A. J. Dodimead, F. Favorite, and T. Hirano, Bulletin No. 13, 198 pp., illus., printed, 1963. International North Pacific Fisheries Commission, 6640 NW Marine Dr., Vancouver 8, B. C., Canada.

SALT FISH:

Review of Salted Fish Production and the European Markets, 1962-63 Season, 44 pp., printed, 1963. Hawes and Company Ltd., London, England.

SARDINE:

Synopsis on the Biology of the Sardine (SARDINELLA AURITA Valenciennes) (African Atlantic), by E. Postel, FAO Fisheries Biology Synopsis No. 6, 49 pp., illus., processed in French, distribution restricted, 1960. Biology Branch, Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

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SCALLOPS:

Report of Scallop Bed Reconnaissance Work Carried Out by the Scallop Dragger OCEAN SWELL, by Gene Imbeault, 6 pp., illus., printed, 1963. Canadian Department of Fisheries, Ottawa, Canada.

SCALLOPS:

"On the Fishes of the Family Scaridae of Japan, Inhabiting the Riu Kiu Islands," by T. Kamohara, article, Reports of the Usa Marine Biological Station, vol. 1, no. 1, June 1963, pp. 1-24, printed, Usa Marine Biological Station, Oita Prefecture, Usa, Japan.

SEA LIONS:

"The Hawaiian Monk Seal," by Dale W. Rice, article, Natural History, vol. LXXIII, no. 2, February 1964, pp. 55-56, illus., printed, single copy 50 cents. The American Museum of Natural History, Central Park West, 19th St., New York, N.Y., 10024.

PROVISIONS OF THE INTERNATIONAL CONVENTION FOR THE NORTHWEST ATLANTIC FISHERIES:

Summary of the Convention for the Northwest Atlantic Fisheries signed at Washington on February 8, 1949, to Harp Seal and Seals, Washington, July 15, 1963 (The Protocol has not been ratified by the United Kingdom). Miscellaneous No. 18, printed, 20 cents, 1963. Bureau of Information Services, 845 3rd Ave., New York, N.Y.

SHAD:

Summary of Trawl Surveys to Determine the Abundance of the Juvenile American Shad (*ALOSA SAPIDISSIMA*) in the Munkey and Mattaponi Rivers, 1952-1956, by Wm. Massmann, Special Scientific Report No. 46, 81 pp., printed, 1963. Institute of Marine Science, Gloucester Point, Va.

SHARKS:

Disposition of Sharks in the Canadian Atlantic (with Special Reference to Newfoundland Waters), by Wilfrid Templemen, Bulletin No. 140, 77 pp., printed, 1963. Fisheries Research Board of Canada, Sir Charles Tupper Bldg., Riverside Dr., Ottawa, Canada.

The Dogfish Shark, a Photographic Study, by Addison E. R. and others, 38 pp., illus., printed, 1963. Holt, Rinehart, and Winston, Inc., 383 Madison Avenue, New York, N.Y. 10017. The purpose of this atlas is to provide a guide both to students in locating and thus be of aid to students in locating structures which otherwise might be difficult to find, and to correctly identifying the structures of the dogfish shark. In addition, the atlas can be used as a guide both to familiarize the student with the structures before dissection, and to review them afterward. The authors believe that photographs are superior to drawings for use by beginning students, since photographs are more realistic and demonstrate precisely the actual relationships among the anatomical structures. The atlas has been arranged according to systems, since this arrangement is the one adopted in a large number of comparative anatomy courses. Because the dogfish is used to introduce the student to fundamental structures of vertebrates, those structures have been photographed which the authors feel are most valuable for a complete understanding of basic anatomy. The atlas covers the external anatomy, digestive system,

mesenteries, female urogenital system, male urogenital system, circulatory system, heart and associated vessels, notochord and associated structures, eye, inner ear, and brain.

SMALL BUSINESS MANAGEMENT:

Helping Small Firms Develop and Exploit New Products, by Delmar W. Karger and Andrew B. Jack, Management Research Summary, 4 pp., illus., processed, 1963. Small Business Administration, Washington, D. C. 20416. Results of this study show that small manufacturers can be helped by a program of conferences on basic management followed by individual counseling. Firms taking part in the study had a 15-percent increase in sales during the 18-month project. Sales of a control group dropped 8 percent during the same period.

Profits and Competition in Retail Food Pricing, by Lee E. Preston, Reed Hertford, and Jim D. Likens, Management Research Summary, 2 pp., processed, 1963. Small Business Administration, Washington D. C. 20416. A retailer should develop pricing guides based on his costs and the tastes and incomes of his customers. The percentage of markup should be determined on the basis of how demand for the item responds to changes in price. "Market-basket pricing" considers the impact of the price of an item on total store sales and profits. A survey of 14 supermarkets found that each firm, while responding to market pressures, was able to maintain some independence and thus to develop varied profit opportunities.

SMOKING:

Fish Smoking, by G. H. O. Burgess and A. McK. Bannerman, 44 pp., printed, 60 cents, 1963. British Information Services, 845 3rd Ave., New York 22, N. Y. The Torry kiln was developed in 1939 in an attempt to produce a fish-smoking kiln capable of turning out a high quality uniform product without the disadvantages of the traditional kiln. Although the Torry kiln has now been widely adopted by the British fish-smoking industry the Torry Research Station believes that the commercial operation of the kilns could be improved. This handbook gives advice to the kiln operator and to management. It will be useful both to the operator and to individuals who want to know whether or not to install a kiln of this type.

SOUTH AFRICAN REPUBLIC:

Sixteenth Annual Report of the Director, 1962, 107 pp., printed, 1963. Fishing Industry Research Institute, Cape Town, South Africa Republic.

SOUTH AMERICA:

Anuario de Pesca (Yearbook), 1962-1963, 287 pp., illus., printed in Spanish, \$7. Ediciones Sudamerica S. A., Av. Wilson 911, Oficina 304, Apartado 2218, Lima, Peru. Contains articles on: "Las 2 Caras de Sudamerica" (The 2 Faces of South America); "Horizontes Oceanicos de Sudamerica" (Oceans' Horizons of South America), by Zacarias Popovici; "Recursos Marinos en Chile, Ecuador y Peru" (Marine Resources of Chile, Ecuador, and Peru), by Robert Clark; "Chile--Grandes Planes" (Chile--Great Plans); "Argentina; Vacas contra la Pesqueria" (Argentina: Cattle Against Fisheries); "Uruguay, el Estado-Pescador" (Uruguay, the Fishermen's State); "Brasil para los

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Brasilenos" (Brazil for the Brazilians); "Venezuela, Mar de Recursos Desconocidos" (Venezuela, Sea of Unrecognized Resources); and "Colombia Tiene Mar Pero no Pesca" (Colombia Has a Sea but no Fishery); "Ecuador, Grande en Atun y Camaron" (Ecuador, Great in Tuna and Shrimp); "Peru: Pura Anchoveta" (Peru: Pure Anchovies); "La Pesca Peruana en Cifras" (The Peruvian Fishery in Figures), by Isaac Vasquez; "Harina y Aceite, Industrias Grandes: (Meal and Oil, Great Industries), by Nicolas Corrochano V. A directory of the Peruvian fishing industry includes sections on fishing firms, producers of fish meal and oil, producers of canned fish, producers of frozen fish, manufacturers of whale meal and oil, suppliers for the fishing industry, and the Peruvian anchovy fishing fleet.

SOUTH CAROLINA:

Annual Report, 1962-1963, Contributions from Bears Bluff Laboratories No. 39, 10 pp., illus., printed, January 1964. Bears Bluff Laboratories, Wadmalaw Island, S. C. (Reprinted from Report of South Carolina Wildlife Resources Department, Fiscal Year July 1, 1962-June 30, 1963.) Discusses the accomplishments of the Bears Bluff Laboratory during the year ended June 30, 1963, covering the study of oysters, shrimp, finfish, and pond cultivation. Also covers hazards of pesticides to the fisheries, the formation in South Carolina of an oystermen's association, a cooperative oceanographic cruise, and construction of a new research vessel.

SPAIN:

"La Exportacion de Galicia en 1962. II--Análisis Global" (Exports from Galicia in 1962. II--Over-All Analysis), article, Industrias Pesqueras, vol. 37, no. 877, November 1, 1963, pp. 433-434, printed in Spanish, single copy 40 ptas. (about 65 U. S. cents). Industrias Pesqueras, Policarpo Sanz, 21-2^o, Vigo, Spain. Shows exports of canned fishery products 1957-1962.

"La Exportacion Gallega de Conservas de Pescados" (Galicia's Exports of Canned Fishery Products), article, Industria Conservera, vol. 29, no. 293, November 1963, pp. 310-313, printed in Spanish. Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

"La Produccion Pesquera Espanola en 1963--Perspectiva Global" (Spanish Fishery Production in 1963--Over-All View), by Mareiro, article, Industrias Pesqueras, vol. XXXVIII, no. 881, January 1, 1964, pp. 8-9, printed in Spanish, single copy 50 ptas. (about 85 U.S. cents). Industrias Pesqueras, Policarpo Sanz 21-2^o, Vigo, Spain.

SPOILAGE:

Autolytic Changes in the Lipids of Fish Flesh, by J. A. Lovern, Torry Memoir No. 106, 8 pp., illus., printed. (Reprinted from Recent Advances in Food Science, 1962, pp. 194-201.) Torry Research Station Aberdeen, Scotland.

"Degradation of Adenine- and Hypoxanthine-Nucleotide in the Muscle of Chill-Stored Trawled Cod (Gadus callarias)," by N. R. Jones and J. Murray, article, Journal of the Science of Food and Agriculture, vol. 13, 1962, pp. 475-480, illus., printed. The Society of Chemical Industry, 14 Belgrave Square, London SW1, England.

STERN TRAWLERS:

"Germany's Newest Stern Trawler," article, Fishing News, no. 2586, 1962, p. 3, illus., printed. Suite 27, 110 Fleet St., London EC4, England.

"A New Trawler to Solve Some Problems," by C. Birkhoff, article, Fishing News International, vol. 1, no. 3, 1962, pp. 46-49, illus., printed. A. J. Highway Publications Ltd., 110 Fleet St., Ludgate House, London EC4, England.

"The Stern Trawler, Pionero," article, Shipping World, vol. 147, no. 3600, 1962, p. 110, illus., printed. Shipping World, 127 Cheapside, London EC2, England.

SUBMARINES FOR FISHERY RESEARCH:

"Soviet Research by Submarine," article, World Fishing, vol. 13, no. 1, January 1964, pp. 40-41, illus., printed, single copy 3s. (about 42 U.S. cents). Grampian Press Ltd., The Tower, 229-243, Shepherds Bush Rd., Hammersmith, London W6, England. Reviews the history of the use of submarines for fishery research and discusses the conversion of a Soviet Navy submarine for this purpose. This consisted of removal of torpedo tubes and substitution of a scientific laboratory; addition of 3 portholes and a television camera for observation, echo-sounders, a direction-finder, and an instrument for instantaneous measurement of water temperature and salinity. Instruments for taking samples of the bottom, for measuring illumination, and for analyzing sea water were also added. The submarine became operative in December 1958.

"Soviet Research by Submarine. Part Two--Observing Herring Underwater," article, World Fishing, vol. 13, no. 2, February 1964, pp. 45-48, illus., printed, single copy 3s. (about 45 U.S. cents). Grampian Press Limited, The Tower, 229-243, Shepherds Bush Rd., Hammersmith, London W6, England. Describes activities of the Soviet fisheries research submarine Severyanka, in the Barents Sea during 1958-59. Observations were made of plankton densities, as well as activities of herring shoals. Variable light sensitivity in herring was demonstrated.

SUCKERS:

Suckers, by Frank J. Schwartz, Educational Series No. 58, 6 pp., illus., printed. Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

SYMBIOSIS:

Symbiotic Behavior between Small Fishes and Jellyfishes, with New Data on that between the Stomatopoda PEPILUS ALEPIDOTUS, and the Scyphomedusa, CHRYSAORA QUINQUECIRRHA, by Romeo Mansueti, Contribution No. 216, 41 pp., illus., printed. (Reprinted from Copeia, no. 1, March 1963, pp. 40-80.) Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

TAIWAN:

Fishermen's Association in Taiwan, by J. L. Chen, FAO Occasional Paper 63/15, 3 pp., printed, 1963. Regional Office for Asia and the Far East, Food and Agriculture Organization of the United Nations, Bangkok, Thailand.

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TARIFF AND TRADE:

Operation of the Trade Agreements Program, 14th Report, July 1960-June 1962, TC Publication 120, 100 pp., processed, 1964. Secretary, U. S. Tariff Commission, Washington, D. C., 20436. During the period covered by the 14th report, the Contracting Parties to the General Agreement on Tariffs and Trade (GATT) sponsored multilateral tariff negotiations. At the 1960/62 GATT tariff conference, negotiations were conducted with respect to: (1) the common external tariff of the European Economic Community, (2) new or additional concessions by some of the contracting parties, (3) concessions by some countries acceding to GATT, and (4) revision of certain existing concessions by some of the contracting parties. The report also covers major developments relating to the general provisions of administration of the GATT, actions of the United States relating to its trade agreements program, and major commercial policy developments in countries with which the United States has trade agreements.

TAXIDOMY:

The Genera of Fishes and a Classification of Fishes, by David Starr Jordan, 816 pp., printed, 1963, \$17.50. Stanford University Press, Stanford, Calif. This is a reissue of an outstanding work, "The Genera of Fishes." Although long recognized as a classic in zoological taxonomy, it has been out of print since the early 1930's. However, the reissue has been delayed with the publication of "A Classification of Fishes." Together these two works have been the work of two generations of ichthyologists and have been instrumental in achieving a stable nomenclature and a general classification of both fossil and modern forms. Today Jordan's works still remain the same reference tool for the taxonomist. The foreword by George S. Myers, Stanford University, sets the work in the perspective of today's knowledge. Thus a guide is provided for correlating newer names and groups with those of Jordan's classification. "The Genera of Fishes" consists of two parts: Part I--From Linnaeus to Duvier, 1758-1858; Part II--From Agassiz to Bleeker, 1833-1858; Part III--From Guenther to Gill, 1859-1880; Part IV--From 1881-1920. "A Classification of Fishes" lists each genus and subgenus, living and fossil, named or described, whether valid or not, in its family and the families themselves are arranged in as natural a sequence as is possible with a series which embraces highly divergent lines of evolution. The book also contains a comprehensive Index, printed here for the first time although used in manuscript form for 20 years. The book is indispensable to any research involving zoological nomenclature and bibliography of fishes. It is a must for any reference library on fish and fisheries.

--Joseph Pileggi

TELEOSTS:

Electron Microscopic Observation on Liver of Teleost, *Ctenochaetus striatus*, by T. Kantani, article, Yamaguchi-Igaku, vol. 12, no. 1, March 1963, pp. 14-19, printed in Japanese, Yamaguchi Idai, Igakukai, Ogushi, Ube, Yamaguchi, Japan.

Electron Microscopic Observation on Stomach of Teleost, *Ctenochaetus striatus*, by T. Yokota, article, Yamaguchi-Igaku, vol. 12, no. 1, March 1963, pp. 14-19, printed in Japanese. Yamaguchi Idai, Igakukai, Ogushi, Ube, Yamaguchi, Japan.

TOXICITY:

Fish Poisoning. A Problem in Food Toxication, by A. F. Bartsch and E. F. McFarren, article, Pacific Science, vol. 16, 1963, pp. 43-56, printed, Office of Publications, University of Hawaii, Honolulu 14, Hawaii.

TRAWLERS:

Le Chalutier-Usine Russe Leskof de 2670 T.J.B. (The Russian Factory-Trawler Leskof of 2,670 Metric Tons), article, La Peche Maritime, vol. 42, no. 1027, October 1963, pp. 690-692, illus., printed in French, 12 F (about US\$2.45). Les Editions Maritimes, 190, Boulevard Haussmann, Paris, France.

TROUT:

This Wonderful World of Trout, by Charles K. Fox, 296 pp., illus., printed, \$7.50, 1963. Foxcrest, Carlisle, Pa.

TROUT AND SALMON:

Trout and Salmon Culture (Hatchery Methods), by Earl Leitritz, Fish Bulletin No. 107, 213 pp., illus., printed in Japanese with English references, reprinted January 1960. Printing Division, Documents Section, N. Seventh St. at Richards Blvd., Sacramento 14, Calif.

TUNA:

Observations on the Economy of the Tuna Fisheries, 69 pp., illus., printed in Japanese, limited distribution, August 1963. Fishery Agency, Tokyo, Japan.

Practical Considerations on Green Discoloration of Tropical Tuna, by J. F. Aldrin, article, Revue de la Conserve, vol. 17, no. 7, 1962, pp. 147-151, printed in French. Societe d'Edition pour l'Alimentation, rue de la Reale, Paris I, France.

Some Technological Aspects of the Norwegian Tuna Purse Seining Fishery, by Johannes Hamre, 14 pp., illus., printed. (Reprinted from Reports on Norwegian Fishery and Marine Investigations, vol. 13, no. 6, 1963.) Fiskeridirektoratet, Bergen, Norway. Gives an account of the development of the Norwegian tuna fishery, including a brief description of the purse-seine method used at present, and a consideration of its efficiency compared to the American technique. Discusses the construction of the net, the fishing operation, the sinking velocity and the operation depth of the net, and some theoretical considerations on net constructions. The combination of a short but strong bunt with a long wing made of very light material has enabled the Norwegian fishermen to construct a purse seine strong enough to hold a giant bluefin and at the same time be manageable for the fishing operation. The object in choice of net design is to obtain the largest catching capacity of the net for the smallest cost of material and power requirement under actual fishing conditions.

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

"Test Purse Seining for Tuna Using the Fish Boat Thynnus," by C. G. du Plessis, article, The South African Shipping News and Fishing Industry Review, vol. XIX, no. 1, January 1964, pp. 86-87, 89, 91-93, illus., printed, single copy 30¢ (about 45 U.S. cents). Thomson Newspapers, South Africa (Pty.) Ltd., 8th Floor, Trust House, Thibault Sq., Box 80, Cape Town, South Africa Republic. The purpose of experiments carried out with the Thynnus was to establish whether tuna could be caught in South African waters with a purse seine operated from a standard local type of pilchard fishing vessel. The vessel is 61 feet long, 42.19 net tons, and of wooden construction. Fishing was conducted between mid-July 1962 and mid-August 1963 off the coast of South Africa. Because of bad weather, only 6 throws were made, none of which was successful. However, the Fisheries Development Corporation of South Africa has decided to continue the work pioneered by the Thynnus, and has recently enlisted the part-time services of a 72-foot pilchard fishing boat.

TURKEY:

Balik ve Balıkçılık (Fish and Fishery), vol. XII, no. 2, February 1964, 32 pp., illus., printed in Turkish with English table of contents. Et ve Balik Kurumu G. M., Balıkçılık Mudurlugu, Besiktas, Istanbul, Turkey. Includes, among others, these articles: "The Sponges (Part I);" "The Postmortem Changes in Turkish Sea-Water Fishes (Part I);" and "Basic Researches on the Development of Fishery in Turkish Fresh-Waters, Lakes and Dams (Part II)."

UNITED ARAB REPUBLIC:

Selling in the United Arab Republic, by Roger D. Severance, OBR 63-160, 8 pp., printed, 15 cents, December 1963. 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.) With a few exceptions, foreign suppliers selling in the U.A.R. deal with the Government. Fifteen government trading or import companies, supervised by the Egyptian General Trade Organization under the Ministry of Economy, have the responsibility for importing all goods that are not imported directly. The report discusses the road to selling--representation, direct selling, import requirements, consumer goods, industrial goods, and transportation, port, and storage facilities; commercial practices (wholesale and retail channels, credit terms and facilities, and trade customs); and market aids (advertising media, market research and trade organizations); and United States aids. Also covers Government procurement; selling under United States programs--A.I.D. loans, P. L. 480 assistance, export insurance, and export guarantees; and notes for business travelers.

U.S.S.R.

Notes from Soviet Fisheries Journals, no. 7, by Donald E. Bevan and Ole A. Mathisen, Circular No. 192, 26 pp., illus., processed, May 1963. Fisheries Research Institute, College of Fisheries, University of Washington, Seattle 5, Wash. Includes, among others, these items: "Strengthening and Developing International Relations in the Field of Fisheries;" "Biological Data on Pink Salmon Transplanted to White Sea and the Barents Sea;" "A Review of the Work of the Fishing Industry in 1962;" "Experiments on Transplantation of the Pacific Shrimp to the Black Sea;" "Catch of Flounder in the Bering Sea."

Rybnoe Khoziaistvo, vol. 50, no. 1, January 1964, 96 pp., illus., printed in Russian, single copy 50 Kopecks (about 56 U. S. cents). Rybnoe Khoziaistvo, B-14 V. Krasnosel'skaia 17, Moscow, U.S.S.R. Includes, among others, articles on: "Let Us Increase the Catches of Fish;" "The Further Development of Fish Culture in the U.S.S.R.;" "For a Rational Organization of Herring Fishing in the White Sea," by I. Bagautdinov; "The Structure of the Sturgeon Catch in the Caspian Sea," by N. I. Kozhin; "Efficacy of Measures to Increase the Ladoga Salmon Stocks," by Z. Boiarskaia; "Method of Unloading Vessels in the Open Sea without Moorings," by S. M. Rudnitskii; "Improved Rigging of 15/21 Trawl Used in Ocean Perch Fishing," by B. K. Zhukov; "The Introduction of Purse Seining on the SRTR-400 Rubtsovsk," by Iu. Moskal'tsov; "How to Lower the Costs of Trawl Nets;" and "Rational Exploitation of the Fishery Resources," by F. I. Baranov.

--M.A. K.

Rybnoe Khoziaistvo, vol. 50, no. 2, February 1964, 96 pp., illus., printed in Russian, single copy 50 Kopecks (about 56 U. S. cents). Rybnoe Khoziaistvo, B-14 V. Krasnosel'skaia 17, Moscow, U.S.S.R. Includes, among others, these articles: "Fishermen and the 7-Year Plan;" "Biological Principles of the Fish Regulations in the Sea of Azov," by A. N. Smirnov and V. M. Naumov; "A Method to Determine the Abundance of Atlantic Salmon in the Pechora River," by O. A. Azernikova; "The Effect of Temperature Factor in the Culture of Young Salmon," by I. N. Irenko; "More Attention to the Mechanization of Loading and Unloading Operations in Fishery Ports," by T. P. Shumilova; "A Trawl for Shrimpers," by V. Dolbich and others; "A New Refrigerated Plant in the Fishing Port of Nakhodka," by V. I. Matveev; "Fish-Freezing Plant Aboard Vessel," by V. K. Vasil'ev.

--M.A. K.

Translations from RYBNOYE KHOZYAYSTVO (Fishing), No. 1, 1962, OTS 63-31096, 26 pp., illus., processed, 75 cents, 1963. (Translated from the Russian, Rybnoe Khozyaystvo, no. 1, January 1962, pp. 9-13, 26-32, 32-36.) Office of Technical Services, U. S. Department of Commerce, Bldg., T-30, Commerce Dr. and Independence Ave. SW., Washington, D. C. 20235. Includes articles on: "Saury," by S. I. Kuvshinov; "Quantitative Assay of Baltic Cod Concentrations by Means of a Sonic Depth Finder," by K. Yudanov; and "Underwater Observations of the Behavior of the Caspian Kilka," by I. V. Nikonov.

VESSELS:

"All-Aluminum Menhaden Vessel," by Joe D. Smith, article, Fishing News International, vol. 2, April-June 1963, pp. 151-152, printed. A. J. Heighway Publications Ltd., 110 Fleet Street, London EC4, England.

"Problems Associated with the Development of Fisheries in Tropical Countries. I--Mechanization of Fishing Boats," by R. C. Cole and L. H. Greenwood-Barton, article, Tropical Science, vol. 4, no. 3, 1962, pp. 127-146, illus., printed. Tropical Products Institute, 56/62 Grays Inn, London WC1, England.

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

Refrigeratornye Suda (Refrigerator Ships), by V. P. Pav, R. 28287, printed in Russian, 1963. (Available on loan from the National Lending Library for Science and Technology, D.S.I.R., Boston Spa, Yorkshire, England.)

VIRGIN ISLANDS:

Analysis of the Fish Populations of Artificial and Natural Reefs in the Virgin Islands, by John E. Randall, 8 pp., printed. (Reprinted from *Caribbean Journal of Science*, vol. 3, no. 1, March 1963, pp. 31-44) University of Puerto Rico, Faculty of Arts and Sciences, Institute of Caribbean Science, Mayaguez, PR

VOCATIONAL EDUCATION:

Choice of Careers No. 90, 40 pp., printed, Her Majesty's Stationery Office, York House, Hareway, London WC2, England

WATER RESOURCES:

Water Resources Research in the Federal Government, by Roger Revelle, article, *Science*, vol. 142, no. 3695, November 22, 1963, pp. 1027-1033, printed, price copy 35 cents, American Association for the Advancement of Science, 1515 Massachusetts Ave. N.W. Washington, D.C., 20005.

WESTERN PACIFIC:

Doklady po 2 Plenumu Komissii po Rybnostvennomu Issledovaniuu Zapadnoi Chasti Tikhogo Okeana (Collection of Papers Read at the Second Plenum of the Commission on the Study of the Economy of the Western Part of the Pacific), edited by P. A. Moiseev, R. 28159, printed in Russian, 1962. (Available on loan from the National Lending Library for Science and Technology, D.S.I.R., Boston Spa, Yorkshire, England.) Komissiiu po

Rybnokhoziaistvennomu Issledovaniuu Zapadnoi Chasti Tikhogo Okeana.

WHALES:

Killer Whale!, by Joseph J. Cook and William L. Wisner, illus., printed, \$3, 1963. Dodd, Mead and Co., 432 Fourth Ave., New York, N. Y., 10016.

WHALING:

"International Whaling Commission (Chairman's Report of the Fifteenth Meeting)," by M. N. Sukhoruchenko, article, *Norsk Hvalfangst-Tidende* (The Norwegian Whaling Gazette), vol. 53, no. 1, January 1964, pp. 1-6, 8, printed. Hvanfangerforeningen, Sandefjord, Norway. Discusses the agenda and accomplishments of the Fifteenth Meeting of the International Whaling Commission, July 1-6, 1963, London. Covers a review of the previous season's catch, the condition of the Antarctic whale stocks, the blue-whale unit limit, protection of humpbacked whales and blue whales, and the Antarctic baleen whaling season. Also covers the North Pacific whale stocks, size limits for sperm whales, taking of whales for scientific purposes, the observer scheme, infractions, finance, and other business.

WHITE SEA:

Biology of the White Sea. Works of the White Sea Biological Station, Moscow University, Vol. 1, 1962. (Review), by V. G. Bogorov, OTS 63-31661, 2 pp., printed, 50 cents, August 30, 1963. (Translated from the Russian, *Zoologicheskii Zhurnal*, vol. 42, no. 6 1963, p. 967.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

WHITING:

The Scottish Whiting Fishery in the North Sea 1955-60, by Ray Gambell, *Marine Research* 1963, No. 4, 31 pp., printed. Department of Agriculture and Fisheries for Scotland, Edinburgh, Scotland.



GIANT BOULDER LANDED BY BRITISH TRAWLER

A four-ton boulder (considered to be the largest ever to be brought up by conventional trawl gear) was landed at Grimsby in late 1963 by the British trawler Okino. Taken from the fishing area known as the "Silver Pits" in the North Sea, the boulder has probably caused damage to fishing gear for years. It took seven hours to stow on deck, a hazardous undertaking which could have sunk the vessel if the rock had dropped. The cost to the trawler owners was well over £100 (US\$280) in lost time and fish. But only two meshes were broken in the cod-end which was made of synthetic fiber of great strength.

Another demonstration of the strength of synthetic fiber was the netting of a 2½-ton boulder in a polypropylene trawl by the British trawler Ross Mallard in December 1962. See *Commercial Fisheries Review*, May 1963 p. 89.

QUESTIONS FREQUENTLY ASKED ABOUT CANNED FOODS

Consumers frequently ask the Food and Drug Administration these questions about canned foods:

1. Where should I store canned foods? Canned foods may be stored any place. The best storage is in a dry place at moderately cool, but not freezing, temperatures. Storage near steam pipes, radiators, furnaces, and kitchen ranges should be avoided.

2. How long will canned foods keep? Canned foods will keep just as long as nothing happens to the can or jar to make it leak. Extremely long periods of storage at high temperatures may result in some loss in color, flavor, appearance, and nutritive value, but the foods will remain wholesome. It is probably best to have a regular turnover, say, once a year.

3. What effect has freezing on canned foods? There may be a slight breakdown of texture of a few products, but otherwise a single freezing and thawing does not affect canned foods adversely. Some creamy foods may curdle or separate upon freezing, but heating usually restores the original consistency.

4. Does damage to the outside of a can mean the food is damaged? Rust or dents do not affect the contents of the can as long as the can does not leak. However, any container that leaks or bulges should be discarded.

5. Is it safe to leave unused portions of canned foods in the can after opening? Yes, it is safe to leave food in the open can. It is important, however, to place the can in the refrigerator, just as you would any other cooked food. Acid foods, such as grapefruit juice, may dissolve a little iron from the open can if it stands in the refrigerator for any long period of time. This metal is not harmful or dangerous to health, but the food may have a metallic taste. If such a product is not going to be consumed within a short time, it probably would be preferable to empty the contents into a glass jar or other container.

6. What about the composition of cans themselves? I sometimes notice discoloration in the food or in the liner of the can. The Food Additives Amendment to the Federal Food, Drug, and Cosmetic Act prohibits the use of food containers which would transfer a poisonous or harmful substance to the food in the can. Consumers may be confident of the safety of the cans found in the market.

However, a harmless discoloration sometimes does occur either in the can liner or on the food itself. This is one example: during the processing necessary for sterilizing some vegetables and meats liberate sulfur. This often causes a mottling of the inside surface of the can, in various shades of brown, blue, or black. This is due to the formation of tin sulfide and sometimes also iron sulfide. Food scientists state, however, that the sulfide stain does not harm the contents, and is merely unsightly. (FDA Memo for Consumer Information, from the Food and Drug Administration, U. S. Department of Health, Education, and Welfare, February 10, 1964.)

PORPOISE AND DOLPHIN RAVAGE FISHERMEN'S CATCH AND GEAR

The porpoise and his larger cousin, the dolphin, are often thought of as man's best friends in the sea. Fond of humans, remarkably intelligent, incurable show-offs, both those mammals popularly painted as playful princes of the deep. This view is not shared by the fishermen of the Mediterranean. From Barcelona to Beirut, from Trieste to Tripoli, porpoise and dolphin alike are detested as pests, robbers, and natural enemies of all who make their living in the sea.

A study of the General Fisheries Council of the Mediterranean (GFCM), written by C. Ravel of France and published recently through the Food and Agriculture Organization, gives reasons for the fishermen's hostility.

Here are a few: Porpoise and dolphin annually destroy or seriously damage thousands upon thousands of fishing nets--not only nets used near the shore but trawls working over the continental shelf at depths up to 400 feet.

Year after year those animals chase away schools of tuna the fishermen have sometimes tracked for days.

Porpoise and dolphin feed on diminishing stocks of sardine, anchovy, sole, and other fish that make up the bulk of the Mediterranean catch.

Italian fishermen report that porpoise alone cost them about \$500,000 a year in destroyed or damaged nets. The French estimate damage to gear at \$400 per boat for the Mediterranean fishing fleet. The Spaniards say the porpoise damages or destroys up to 20,000 tons of gear a year. Dolphin are a major threat to the prize bluefin tuna fisheries off Morocco's north coast. Yugoslavia, with an average of 3,000 nets ruined and 6,000 damaged, counts its yearly losses to those animals at about \$270,000.

What is doubly galling to the fishermen is that the porpoise and the dolphin have public sympathy on their side. Any Mediterranean-wide campaign against them would probably set off a chain of protests. Admiration for the porpoise and the dolphin goes back to ancient times. Greeks and Romans saw the dolphin as a noble, even divine, creature. Homer called the dolphin "the King of Fishes and Lord of the Sea." He also said that to hunt the dolphin was sinful and displeasing to the Gods. Pliny cited the dolphin as a savior of drowning men and a fierce fighter of crocodiles in the Nile.

Despite the porpoise-dolphin's established public relations image, the fishermen do not let them in their own defense. They use a variety of attacks:

Porpoises and dolphins are shot with rifles--without much real effect on their numbers. Underwater detonators and grenades scare them away but seldom kill them. Poisons are used in the sea where they are thought to collect--usually without impressive results. Sonic wave emitters frighten them away from fishing boats--temporarily. Once the sounders are shut off, the "divine creatures" come swarming back. Other methods have been tried--with indifferent success.

The GFCM study offers one solution: eat them. Ravel's study says that "porpoise hunting might perhaps be intensified if porpoise meat could be marketed in the ordinary way."

He points out that although porpoise meat is little eaten in his own country (its bright color is considered shocking), there is no reason why the meat could not achieve popularity.