

## FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON, D. C. 20240. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

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-3384	- Michigan Landings, September 1963, 3 pp.
CFS-3412	- Frozen Fishery Products, January 1964, 8 pp.
CFS-3421	- Alaska Fisheries, 1962 Annual Summary, 8 pp.
CFS-3436	- Maine Landings, December 1963, 4 pp.
CFS-3441	- Michigan Landings, December 1963, 3 pp.
CFS-3443	- California Landings, November 1963, 4 pp.
CFS-3444	- New Jersey Landings, January 1964, 3 pp.
CFS-3445	- Washington Landings, 1963 Annual Summary, 2 pp.
CFS-3446	- Louisiana Landings, January 1964, 3 pp.
CFS-3447	- Rhode Island Landings, December 1963, 3 pp.
CFS-3448	- Shrimp Landings, October 1963, 8 pp.
CFS-3449	- Pacific Coast Fisheries, 1962 Annual Summary, 6 pp.
CFS-3452	- Wisconsin Landings, January 1964, 2 pp.
CFS-3453	- Canned Fishery Products, 1963 Annual Summary, 18 pp.
CFS-3454	- Industrial Fishery Products, 1963 Annual Summary, 9 pp.
CFS-3455	- Packaged Fishery Products, 1963 Annual Summary, 5 pp.
CFS-3456	- California Landings, December 1963, 4 pp.
CFS-3457	- New York Landings, January 1964, 4 pp.
CFS-3458	- Mississippi Landings, December 1963, 3 pp.
CFS-3461	- Maryland Landings, January 1964, 3 pp.
CFS-3464	- Virginia Landings, January 1964, 3 pp.
CFS-3468	- Breaded Shrimp, October-December 1963, 2 pp.
CFS-3480	- Florida Landings, February 1964, 8 pp.

### Wholesale Dealers in Fishery Products (Mississippi River and Tributaries) (Revised):

SL-34 - Wisconsin, 1962, 2 pp.  
SL-35 - Illinois, 1962, 2 pp.  
SL-38 - Missouri, 1962, 2 pp.

SL-39 - Tennessee, 1962, 2 pp.

Sep. No. 704 - Shrimp Explorations Off Vancouver Island (British Columbia) by M/V John N. Colton - October-November 1962.

FL-550 - Edible Crabs of the United States, by G. H. Rees, 20 pp., illus., December 1963. Discusses natural history--molting and growth, reproduction and development, and autotomy and regeneration of lost legs; Atlantic and Gulf coast crabs--blue, rock and Jonah, green, deep-sea red, and Sargassum crabs; Pacific and Alaska crabs--Dungeness, and tanner crabs; and Hawaiian crabs--Kona and other species of crabs.

FL-554 - Spiced and Pickled Seafoods, by Norman Jarvis, 19 pp., October 1963. Reviews the history of the use of fishery products preserved with vinegar and spices, and defines the term "pickled." Discusses preservative action of ingredients and requirements for those ingredients. Includes recipes for preparation of spiced and pickled herring, salmon, mackerel, haddock, sturgeon, oysters, and shrimp.

FL-564 - Parasite of Freshwater Fish. I--Fungi (Saprolegnia and Relatives) of Fish and Fish Eggs, by Glenn L. Hoffman, 6 pp., illus., December 1963.

FL-565 - Lymphocystis Disease of Fish (Revised), Ken Wolf, 4 pp., illus., January 1964.

SSR-Fish, No. 449 - Distribution and Relative Abundance of Commercially Important Pandalid Shrimps in the Northeastern Pacific Ocean, by Lael L. Ronne, 10 pp., illus., December 1963.

SSR-Fish, No. 454 - Fur Seal Investigations, Prudhoe Bay, Alaska, 1962, by Alton Y. Roppel and others, 10 pp., illus., December 1963.

SSR-Fish, No. 458 - Movements of King Crabs Taken and Released in Shumagin Islands Area, 1957-1962, by Murray L. Hayes and Donald T. Montgomery, 10 pp., illus., December 1963.

SSR-Fish, No. 461 - Winter-Run Chinook Salmon in the Sacramento River, California, with Notes on Water Temperature Requirements at Spawning, by Donald W. Slater, 14 pp., illus., November 1963.

SSR-Fish, No. 463 - Exploratory Fishing for Market Herring, by Keith A. Smith, 12 pp., illus., December 1963. Exploratory herring fishing operations

carried out along the Maine coast during the summers of 1955 and 1956 using the research vessel Theodore N. Gill and the chartered small otter trawler Metacomet. The coastal and Gulf of Maine waters were sounded and fished with a lampara seine, gill nets, midwater trawls, and otter trawls. Inshore explorations located zero-year-class herring in the bays and inlets and traced their development in those areas until they became sardine-sized fish in late fall. Sardine-sized and large herring were found occupying an ocean-bottom habitat during the winter. A scattering of large unschooled herring was found in coastal waters during the summer of 1956.

RR-Fish. No. 471 - Acute Oral Toxicity of 1,496 Chemicals Force-Fed to Carp, by Howard A. Loeb and William H. Kelly, 127 pp., September 1963.

RR-Fish. No. 474 - Publications on Fish Parasites and Diseases, 330 B.C.-A.D. 1923, by E. A. McGregor, 86 pp., 1963.

RR-Fish. No. 475 - Pelagic Fur Seal Investigations, Alaska Waters, 1962, by Clifford H. Fiscus, Gary A. Baines, and Ford Wilke, 63 pp., illus., January 1964.

RR-Wildlife No. 79 - Comprehensive Bibliography of Zostera marina, by Ronald C. Phillips, 38 pp., January 1964. A bibliography on eelgrass.

Bureau of Commercial Fisheries Biological Laboratory, Galveston, Texas, by George A. Rounsefell, Circular 154, 31 pp., illus., printed, November 1963. Discusses the history of the laboratory, climate and recreation, research problems in the Gulf of Mexico, laboratory site, facilities, and publications by staff members.

Monofilament Gill Net Fishing for Skipjack Tuna in Hawaiian Waters 1961-62, by Richard S. Shomura, Circular 170, 25 pp., illus., October 1963. Gill-netting techniques for catching skipjack tuna were investigated in 1961 and 1962, with the joint support of the State of Hawaii and the U. S. Bureau of Commercial Fisheries. The study was carried out by the Bureau personnel on a chartered skipjack vessel from July 23 to September 29, 1961, and May 9, to August 25, 1962. Results indicated that the monofilament gill-net method of fishing will not supplant nor effectively supplement the present pole-and-line method of catching skipjack tuna.

Northern Fur Seal, by Ralph C. Baker, Ford Wilke, and C. Howard Baltzo, Circular 169, 26 pp., illus., September 1963. Discusses early history of fur sealing in the North Pacific, distribution and movement of seals, food, physical characteristics, reproduction, and mortality and disease. Also covers population, management, research, sealing activity on the Pribilof Islands, and processing and sale of fur seal skins.

Soft-Shell Clam, by Robert W. Hanks, Circular 162, 19 pp., illus., December 1963. Describes the soft-shell clam industry of the Atlantic coast; reviews past and present economic importance, fishery methods, fishery management programs, and special problems associated with shellfish culture and marketing. Discusses economic losses suffered because of destruction of soft-shell clams by green crabs and other predators, and devices used to control them. Provides a summary of soft-shell clam natural

history including distribution, taxonomy, anatomy, and life cycle.

A Survey of Japanese Research on Shellfisheries and Seaweeds, by John B. Glude, Circular 168, 22 pp., illus., January 1964. Presents observations made on a trip to Japan in July 1958 to explore the status of shellfishery research, to locate sources of scientific information that might be of value to United States biologists, and to encourage international exchange of such scientific information. Discusses facilities for fisheries research; and research work conducted on oysters, clams, pearl oysters, scallops, abalones, shrimp, spiny lobsters, and seaweeds.

Trout Feeds and Feeding, by Arthur M. Phillips, Jr., A. V. Tunison, and George C. Balzer, Circular 159, 41 pp., October 1963.

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

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

California Fishery Market News Monthly Summary, Part II - Fishing Information, March 1964, 13 pp., illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6317, 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.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, March 1964, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va., 23369.) Landings of food fish and shellfish and production of crab meat and shucked oysters for 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 York City's Wholesale Fishery Trade--Monthly Summary--February 1964, 18 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 freshwater 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) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries,

Monthly Summary, March 1964, 7 pp. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle, Wash. 98104.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl vessels as reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

## MISCELLANEOUS PUBLICATIONS

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### ADRIATIC SEA:

Fishes of the Adriatic, by T. Soljan, OTS 60-21661, 431 pp., illus., printed, 1963, \$4.25. (Translated from the Serbo-Croatian, *Fauna et Flora Adriatica*, Volumen 1, *Pesces.*) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

### ALGAE:

*Ecology of Floating Algal Communities in Florida*, by Ronald C. Phillips, Contribution No. 76, 6 pp., printed. (Reprinted from *Quarterly Journal of the Florida Academy of Sciences*, vol. 26, no. 4, December 1963, pp. 329-334.) Marine Laboratory, Florida State Board of Conservation, Maritime Base, St. Petersburg, Fla.

The Occurrence of *GELIDIELLA TENUISSIMA* Feldm. et Hamel in Puerto Rico, by Hugo L. Blomquist and Luis R. Almodovar, 3 pp., illus., printed. (Reprinted from *Nova Hedwigia*, vol. III, no. 1, 1961, pp. 67-69.) Institute of Marine Biology, University of Puerto Rico, Mayaguez, Puerto Rico.

### AMINO ACIDS:

"A Comparative Study of Amino Acids in the Muscle of Different Species of Fish," by Olaf R. Braekkan and Gjermund Boge, article, *Fiskeridirektoratets Skrifter, Serie Teknologiske Undersokelser*, vol. 4, no. 3, 1962, pp. 1-19, printed. *Fiskeridirektoratets*, Bergen, Norway.

### ANTIBIOTICS:

"Antibiotic Properties of Micro-Organisms Isolated from Various Depths of World Oceans," by E. N. Krasil'nikova, article, *Microbiology*, vol. 30, March-April 1962, pp. 653-791, printed. (Translated from the Russian, *Mikrobiologiya*, vol. 30, September-October 1961, pp. 653-791.) American Institute of Biological Sciences, 2000 P St. N. W., Washington, D. C. 20006.

### ANTIOXIDANTS:

"The Antioxidant Effects of Sodium Tripolyphosphate and Vegetable Extracts on Cooked Meat and Fish," by Margaret B. Ramsey and Betty M. Watts, article, *Food Technology*, vol. 17, August 1963, pp. 102-105, printed. The Garrard Press, 510 N. Hickory, Champaign, Ill.

### BAIT:

"Study on the Bait for Fishing. II--Efficiency of Chum Mixed with Starch Dregs for Mackerel Fishing," by Takeo Koyama and Takashi Kaneda, article, *Bulletin of the Japanese Society of Scientific Fisheries*, vol. 28, October 1962, pp. 979-984, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

### BARNACLES:

*Mechanism of Antifouling Action in Shipbottom Paint*, by Charles E. Lane and Francis J. Bernard, Final Report, 6 pp., processed, January 1964. The Marine Laboratory, Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

### BIOCHEMISTRY:

"Chemical Studies on the Red Muscle (Chai) of Fishes. XIII--Alkali Resistibility of Hemoglobin and Myoglobin," by Fumio Matsuura and Kanehisa Hashimoto, article, *Bulletin of the Japanese Society of Scientific Fisheries*, vol. 28, February 1962, pp. 201-209, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

### BRAZIL:

*Pesca--1962, Estrutura e Producao* (Fishing Industry 1962, Structure and Production), 45 pp., processed in Portuguese, January 1964. Ministerio da Agricultura, Departamento Economico, Servico de Estatistica da Producao, Avenida Pasteur no. 404, Terr. Rio de Janeiro, Brazil.

### CALIFORNIA:

*California Fish and Game*, vol. 50, no. 2, April 1964, 67 pp., illus., printed, single copy 75 cents. Documents Section, P. O. Box 1612, Sacramento, Calif. 95807. Includes, among others, articles on: "Annual Abundance of Young Striped Bass, *Roccus saxatilis*, in the Sacramento-San Joaquin Delta, California," by Harold K. Chadwick; "Some Observations on Factors Associated with Survival of Striped Bass Eggs and Larvae," by Arnold B. Albrecht; and "Northward Movement of the California Sea Otter," by Robert T. Orr and Thomas C. Poulter.

### CANADA:

"Canadian Fisheries in 1963," article, *Trade News*, vol. 16, no. 8, February 1964, pp. 5-8, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada. Events of national importance were the announcement of a 12-mile exclusive fishing zone along the entire Canadian coastline to become effective in May 1964; the admission of Japanese vessels to the halibut fishery of eastern Bering Sea and the herring fishery west of the Queen Charlottes; and upward revision of protection for Canadian owners of small vessels under the Fishermen's Indemnity Plan. In the Atlantic fisheries 1963 was a year of strong capital expansion, especially in the freezing industry, with emphasis on a changeover from export of raw ma-



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materials to increased manufacture of items fully processed in Canada. In the Maritime Provinces the catch has grown in value from just under C\$39 million in 1961 to almost C\$50 million in 1963. Newfoundland fishermen had a year of unprecedented prosperity. In relation to the fishermen's over-all income, good results and prices in the herring fishery of British Columbia made up for the sluggish market for halibut; but nothing could write off their summer loss in salmon and they closed the year with earnings nearly C\$9 million smaller than in 1962. Fresh-water fisheries continued at the high level of prosperity established in 1962 until very hot July weather caused a scarcity of ice on the prairies; a long warm fall left many lakes suspended for weeks between the end of open-water fishing and the delayed start of ice fishing; and a botulism scare in the United States caused the market to collapse.

Fisheries Statistics British Columbia, 1962, 16 pp., illus., printed in French and English, 50 Canadian cents, March 1964. Queen's Printer and Controller of Stationery, Ottawa, Canada. Contains data on quantity and value of fishery products by species, British Columbia, 1950-62; quantity and value by species and fisheries districts, 1961-62; capital equipment employed in primary fisheries operations, 1961-62; and number of persons engaged in primary fisheries operations, 1961-62.

Office Consolidation of the British Columbia Fishery Regulations Made under the Fisheries Act, Cat. No. Fa4-127/1962, 51 pp., printed, 1962. Queen's Printer and Controller of Stationery, Ottawa, Canada. Regulations covering commercial and sport fishing in tidal and non-tidal waters of British Columbia, except for Canadian national parks.

#### LIVE FISH:

Adaptations of Cave Fish, article, New Scientist, vol. 21, no. 376, January 30, 1964, p. 290, printed, single copy 1s. 3d. (about 20 U.S. cents). Cromwell House, Fulwood Pl., High Holborn, London WC1, England.

#### CLAMS:

Razor Clams, Educational Bulletin No. 4, 13 pp., illus., printed, 1963. Fish Commission, 307 State Office Bldg., 1400 SW. 5th Ave., Portland, Oreg., 97201. Discusses the life history of the razor clam--distribution, description, reproduction and growth, and food habits; digging razor clams--tides, tools and equipment, locating them, and digging; preparing clams for the table--cleaning and cooking razor clams; and regulations for digging.

Wire Belt Harvests Clams, article, Food Processing, vol. 24, July 1963, 59 pp., printed. Putnam Publishing Co., 111 E. Delaware Pl., Chicago 11, Ill.

Merking av Rusefanget Torsk i Omradene Smøla-Helgeland (Tagging of Trap-Net-Caught Cod in the Areas of Smøla-Helgeland), by Arvid Hylen, article, Fiskets Gang, vol. 50, no. 5, January 30, 1964, pp. 87-93, illus., printed in Norwegian with English summary. Fiskets Gang, Fiskeridirektoratet, Radstuepass 10, Bergen, Norway.

#### COLOMBIA:

Foreign Trade Regulations of Colombia, by Gary D. Adams, OBR-64-3, 8 pp., printed, January 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) A report of value to businessmen interested in import-export trade with Colombia. In general, Colombia's foreign trade policy is designed to preserve foreign exchange for the importation of capital goods and other items considered essential for economic development, to protect emerging national industries from foreign competition, and to obtain revenue for the government. The report discusses the import tariff system, sales and other internal taxes, documentation and fees, labeling and marking requirements, and special customs provisions. It also includes information on nontariff import trade controls, Colombia's export controls, United States export and import controls, and diplomatic representation between the two countries.

#### COMMISSIONS:

(Atlantic States Marine Fisheries Commission) Twenty-Second Annual Report 1962/63 (to the Congress of the United States and to the Governors and Legislators of the Fifteen Compacting States), 48 pp., printed. Atlantic States Marine Fisheries Commission, 336 E. College Ave., Tallahassee, Fla. Includes condensed reports of proceedings of the Annual Meeting of the Commission, on the work of the Commission, various committees, and the four section meetings. The North Atlantic Section reports on Soviet fisheries activities off United States coasts, shellfish inspection and purification projects, and destruction of estuarine habitats. The Middle Atlantic Section discusses marsh productivity studies in Delaware, status of the American shad in the Delaware River, and size limits for catches of fluke and hard clams. The Chesapeake Bay Section covers oyster mortalities and rehabilitation program, striped bass and menhaden programs, and shellfish sanitation program. The South Atlantic Section covers shrimp marking and statistical studies, pollution of oyster beds, and exploitation of calico scallop resources. Also included are an address on "Legislation and Resources Conservation," agenda of the Twenty-Second Annual Meeting, and report on financial statements.

#### CONSERVATION:

Federal Aid in Fish and Wildlife Restoration (Annual Report on Dingell-Johnson and Pittman-Robertson Programs for the Fiscal Year Ending June 30, 1962), 86 pp., processed, 1963. Sport Fishing Institute, Bond Bldg., Washington, D. C. Presents a short program review of expenditures and projects operated during FY 1962, and statistical tables giving data on individual projects, land purchases, hunting and fishing licenses issued by the states, and other pertinent information.

The Race for Inner Space, 39 pp., illus., printed, 1964, 55 cents. Division of Information, Office of the Secretary, 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.) A special report to the Nation dramatizing

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the loss or abuse of areas ideally suited for public use. Contains more than 80 photos that help tell the story of the Department of the Interior's renewed efforts to preserve and provide more outdoor enjoyment for this Nation's growing population and to utilize wisely the total resource environment, ranging from fish and wildlife to minerals and forests. The Bureau of Sport Fisheries and Wildlife asks Americans to "stem the advancing sheet of chemicals and concrete" in its chapter "On Behalf of Our Fellow Creatures." The Bureau of Commercial Fisheries points out the necessity "to harness the seas so that the land and its inhabitants may prosper." The short history of the Bureau of Outdoor Recreation is told in a chapter, "Birth of a Bureau." The Bureau of Reclamation's section, "Build a Better Water Trap," shows how a trickle of visitors to reservoirs has grown to a steady stream. The Bureau of Land Management's contribution, "466 Million Acres in the Bank," tells the story of "the race between preservation and abuse," on the public lands. The Bureaus of Mines and of Indian Affairs, the Office of Territories, and the Geological Survey add their contributions to an overall view of what is happening to the earth's space and its occupants.

#### CRABS:

Yorkshire Crab Investigations 1962, Laboratory Leaflet (New Series) No. 3, 14 pp., illus., processed, May 1963. Fisheries Laboratory, Ministry of Agriculture, Fisheries and Food, Burnham-on-Crouch, Essex, England.

#### DENMARK:

Fiskeriberetning for Aret 1962 (The Ministry of Fisheries Annual Report for 1962), 132 pp., illus., printed in Danish with English resume, Kr. 7.50 (about US\$1.10). Fiskeriministeriet, 1 Kommission Hos, G.E.C. Gad, Copenhagen, Denmark. Includes information and statistical tables on number of fishermen employed, fishing vessels and gear, and landings of fish and shellfish. Also contains information on trout farms; production of canned, filleted, and smoked fish; and foreign trade in fishery products.

Regulation of the Fisheries in Danish Waters, by Erik Ursin, 10 pp., processed, 1964. (Translated from the Danish, Fiskeriaarbogen, 1963.) Danmarks Fiskeriog Havundersogelser, Charlottenlund, Denmark. (A limited number of copies of the translation are available from the United States Embassy, Copenhagen, Denmark.) The aims of fishery regulation may be either to increase total landings in the ports or to increase the individual vessel's landings. If the fisheries are regulated with a minimum size-limit, these rules must be followed if the stock is to be utilized in the best way: (1) A definite minimum size-limit corresponds to the number of vessels; and (2) The more cutters, the higher the minimum size-limit. Methods to regulate a fishery include ways to restrict the fishery effort--controlling the number of vessels, prohibiting fishing at certain times of the year; and ways to protect the young--minimum size-limit regulations, mesh-size control. Other methods of regulating a fishery are preservation of roe fish and transplanting of young fish to better places for growth. Other topics discussed are difficulties with predatory fish, economics of catchability, and natural

variations in the stock. It is impossible to protect all stocks equally, states the author.

#### ECOLOGY:

Freshwater Ecology, by T. T. Macan, 348 pp., illus., printed, 1964, \$6.50. Longman, Green and Co., Ltd. 6-7 Clifford St., London W1, England.

#### ECUADOR:

"Apuntes e Informaciones sobre las Pesquerias en la Provincia de El Oro" (Memoranda and Information on the Fisheries in the Province of El Oro), by Raul Jaramillo del Castillo, Pedro Valverde A., and Domingo Quiroga, article, Boletin Informativo, vol. I, no. 1, December 1963, pp. 1-30, illus., printed in Spanish. Instituto Nacional de Pesca del Ecuador, Guayaquil, Ecuador.

Labor Law and Practice in Ecuador, BLS Report No. 242, 45 pp., illus., printed, February 1963, 35 cents. Bureau of Labor Statistics, U.S. Department of Labor, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Discusses Ecuador's geographic setting, manpower resources, culture and customs, education and health, and government in relation to labor. Also covers industrial relations; pay and allowances; hours of work and premiums; safety, factories, and insurance; and employment practices. Included are statistical tables showing data on economically active population, by economic sector, sex, occupation, age, and geographic area; number of schools and enrollment, by type of school; and other similar information.

#### FAROE ISLANDS:

Faroes in Figures, no. 23, September 1963, 7 pp., illus., printed. Foroya Fiskasola, Torshavn, Faroe Islands. Includes an article on "Development of the Faroese Fishing Fleet," financial statement of the Faroese Fishing Vessel Mortgage Finance Corporation, and statistical tables on export and production of saltfish and dried cod.

Faroes in Figures, no. 24, December 1963, 7 pp., illus., printed. Foroya Fiskasola, Torshavn, Faroe Islands. Presents an article, "Loan and Deposits of the Faroese Monetary Institutions," which includes information on renewal of the fishing fleet, export of fishery products, debenture and loans secured on fishing vessels, and other topics. Also contains statistical tables on export and production of saltfish, dried cod, and frozen fish fillets.

Faroes in Figures, no. 25, March 1964, 7 pp., illus., printed. Foroya Fiskasola, Torshavn, Faroe Islands. Presents an article, "The Economic Development of the Faroes in 1963," which includes information on landings and exports of fishery products, status of fishing fleet, and other topics. Also contains statistical tables on export and production of saltfish, dried cod, and frozen fish fillets.

#### FISH BEHAVIOR:

Effect of Constant Magnetic Field on Conditioned Reflexes in Sea Fish, by Yu. A. Kholodov and G. L. Verevina, 15 pp., illus., printed, 50 cents, December 1963. (Translated from the Russian, Biologiya B)

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*Morya*, vol. 1, 1962.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

Formation of Conditioned Reflex Responses to Magnetic Field in Fish, by Yu. A. Kholodov, F-190, 15 pp., printed, January 1964, 50 cents. (Translated from the Russian, *Trudy Soveshchaniya po Fiziologii Ryb Akademii Nauk SSSR*, no. 8, 1958.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

#### SEA FARMING:

Farming under the Sea," by William Reed, article, *Current Affairs Bulletin of the Indo-Pacific Fisheries Council*, vol. 36, April 1963, pp. 12-14, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Regional Office, Bangkok, Thailand.

#### SEA FAT:

Component Glycerides of an Indian Fresh-Water Fish Fat," by S. P. Pathak and B. R. Reddy, article, *Journal of the Science of Food and Agriculture*, vol. 14, June 1963, pp. 395-398, printed. The Society of Chemical Industry, 14 Belgrave Sq., London SW1, England.

Fat in Some Teleost Fish," by Wincenty Kilarski, article, *Acta Biologica Cracoviensia Serie Zoologie*, vol. 3, no. 1, 1960, pp. 23-57, printed. *Biologica Cracoviensia Serie Zoologie*, Polska Akademia Nauk, Komisja Biologiczna, Krakow, Poland.

#### SEA FINDER:

Fish-Finding with Sonar, 85 pp., illus., printed, 1964. Simrad, Simonsen Radio A. S. Oslo, Norway. (Available through Simrad distributors and agents throughout the world.) Locating fish with some type of device has been a fishermen's dream, but in recent years that dream has become reality. There are a number of different types of fish-finders now on the market. This particular book deals with the use of sonar in locating fish. It is the first book written in English on the theory and practice of finding fish with sonar. This written guide will do much to aid any fisherman or biologist in using sonar effectively. Written in simple terms, it deals with the basic elements of sonar and goes on to discuss its practical uses. It seeks to acquaint operators of sets with the elementary principles of physics that are involved as well as with the basic operations of the set. The chapters in the little book include discussions of elementary acoustics, some notes on elementary oceanography, how sonar functions, classification of sonar echo, search methods, and practical applications. A team of internationally known experts wrote the book: Finn Devold, head of the herring investigations at the Marine Research Institute, Bergen, Norway; Lars Midttun, an oceanographer; and Edmund Vestnes, and experienced commercial sonar operator (more than 30,000 hours). It is well illustrated with diagrams, drawings, and sample echograms. Finn Devold in the introduction says: "The book should be found not only wherever courses in sonar are conducted, but also aboard every vessel that is, or some day may be, equipped with sonar."

--Joseph Pileggi

#### FISH PROTEIN CONCENTRATE:

"Factors Influencing the Nutritional Value of Fish Flour. III--Further Studies on Availability of Amino Acids," by A. B. Morrison, article, *Canadian Journal of Biochemistry and Physiology*, vol. 41, July 1963, pp. 1589-1594, printed. National Research Council, Sussex St., Ottawa 2, Canada.

#### FISHWAYS:

Pool-Type Fishways--Biological Aspects in Their Construction, by Stanislaw Salowicz and Stanislaw Zarnecki, OTS 60-21496, 139 pp., illus., printed, \$1.50, 1962. (Translated from the Polish, *Roczniki Nauk Rolniczych*, vol. 69, ser. D, 1954, pp. 5-171.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235. Discusses in detail types of fishways; fishways in Central European rivers; fishways on Scottish rivers; design of fishways--placement, the approach, the outlet (fish entrance), guiding screens, the inlet (fish exit), route of the fishway, pool structure, weirs between pools, openings in weirs between pools, drop between pools, illumination, protective screens, control fyke nets, building nets, water discharge, and attracting water.

#### FLORIDA:

Review of Recent Progress in Departmental Marine Research, edited by Robert M. Ingle, Special Scientific Report No. 7, 14 pp., processed, December 31, 1963. Marine Laboratory, The Florida State Board of Conservation, Maritime Base, St. Petersburg, Fla. Reports on accomplishments of the Salt Water Fisheries Division in research projects in shellfish nutrition, shellfish purification, fisheries plankton studies, spiny lobster studies, fish tagging and other finfish studies, shrimp investigations, exploratory fishing, ecological studies, and various phases of red tide investigation. A report on "Scientific and Practicable Conversion of Marine Trash Materials into Composts and Fertilizers" is also included.

#### FOOD TECHNOLOGY:

Food Technology the World Over, vol. 1--Europe, Canada and the United States, Australia, edited by Martin S. Peterson and Donald K. Tressler, 540 pp., illus., printed (1963), \$15 (foreign \$16). The Avi Publishing Company, Inc., P. O. Box 388, Westport, Conn. The first of two volumes describing the technologies of the more highly-industrialized nations. Volume 1 is the work of many writers, each of whom is closely acquainted with the particular nation's food industry and technology. There are five parts. Parts 1 and 2, food manufacturing around the world and technological determinants in the evolution of the modern highly-mechanized food industry, provide orientation for the succeeding three parts. Parts II, IV, and V deal, respectively, with the technologies of selected nations of Europe (Denmark, France, Western Germany, the Netherlands, Sweden, United Kingdom, and the Union of Soviet Socialist Republics), of Canada and the United States, and of Australia. Tables and map in Part I present many facets of the world food picture (amount processed, world trade, number of factories, etc.) in interesting detail. Part III offers a broad view of the structure of food technology in Europe--its engineering, scientific, and technological supporting programs, distribution facilities, and background information on the national food economy and the nutritional status of its populations. Part IV



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deals directly with the food technology in Canada and the United States. Part V presents the story of Australia's energetic attack on problems inherent in her food economy and geography. Modest bibliographies contain carefully selected references.

--Frank T. Piskur

#### FREEZE-DRYING:

Freeze-Drying: Cost Projection, by Kermit Bird, Marketing Research Report No. 639, 37 pp., illus., processed, January 1964. Marketing Economics Division, Economic Research Service, U. S. Department of Agriculture, Washington, D. C. 20250.

Selected Writings of Freeze-Drying of Foods, by Kermit Bird, ERS-147, 54 pp., illus., processed, January 1964. Marketing Economics Division, Economic Research Service, U. S. Department of Agriculture, Washington, D. C. 20250.

#### FRESH-WATER FISH:

"Notes on the Distribution of Freshwater Fishes," by L. F. de Beaufort, article, Copeia, no. 1, March 26, 1964, pp. 60-65, illus., printed. American Society of Ichthyologists and Herpetologists, 18111 Northhoff St., Northridge, Calif.

#### GEAR:

"The Lake Erie Gear Development Project--1959," A. W. Lantz, article, Progress Reports of the Biological Station and the Technological Unit, Fisheries Research Board of Canada, no. 2, May 1961, pp. 5-14, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

A Simple Integrating Depth Recorder, by B. V. Hamon, D. J. Tranter, and A. C. Heron, Collected Reprint 498, 3 pp., illus., printed. (Reprinted from Deep-Sea Research, vol. 10, 1963, pp. 457-458.) Division of Fisheries and Oceanography, Commonwealth Scientific and Industrial Organization, 314 Albert St., East Melbourne C2, Victoria, Australia.

#### GENERAL:

"Food and Agriculture in 1984: The Race Will Not Yet Be Won," by R. B. Sen; "Farming as a Science-Based Industry," by William Slater; "Beware the Malnutrition of Affluence," by John Yudkin, articles, New Scientist, vol. 21, no. 376; January 30, 1964, pp. 270-273, illus., printed, single copy 1s. 3d. (about 20 U. S. cents). Cromwell House, Fulwood Pl., High Holborn, London WC1, England. A symposium on the subject of accomplishments to be expected in the fields of food and agriculture within the next 20 years. Factors which must be considered in estimating what may be achieved are: (1) the effect of technical progress on crop and livestock yields; (2) the effect of rising population on the intensity of cultivation which in turn affects crop and livestock yields; and (3) the possibility of increasing production through the development of new land resources. Agricultural resources can be supplemented by a very great increase in the production of fish. If, by 1984, the less developed countries can double their agricultural output, they will be ready to move into a more advanced form of agriculture with larger units and mechanization in the remaining years of the century, and so meet the needs of the greater population increase which is expected by 2000 A. D. By 1984,

it is probable that scientists will have enough information about the factors which determine food choice to ensure that they know how to bridge the gap between wide food availability and appropriate consumption.

#### GERMAN FEDERAL REPUBLIC:

Die Versorgung mit Fischen, Schal- und Krustentieren in der Bundesrepublik in den Wirtschaftsjahren 1959/60 bis 1961/62. Teil I--Versorgungsbilanz (The Supply of Fish, Shellfish, and Crustacea in the Federal Republic during Fiscal Years 1959/60 through 1961/62. Part I--Balance of Supply), by Otto Baumeister, Teil II--Verbrauch und Nährwertzusammensetzung (Part II--Consumption and Composition of Nutritional Value), by Willi Wirths, 28 pp., illus., printed in German. (Reprinted from Berichte über Landwirtschaft, vol. 41, no. 4, 1963, pp. 741-768.) Verlag Paul Parey, Spitalerstrasse 12, 2000 Hamburg 1, Germany.

#### GRADING:

"Fresh-Water Fish Grading Equipment," by A. W. Lantz, article, Progress Reports of the Biological Station and the Technological Unit, Fisheries Research Board of Canada, no. 2, May 1961, pp. 53-56, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

#### HALIBUT:

Pacific Halibut Fishery Regulations (Effective March 18, 1964), 13 pp., printed. International Pacific Halibut Fishery Commission, Fisheries Hall No. 2, University of Washington, Seattle 5, Wash. The regulations for the North Pacific halibut fishery were published in conformity with the Pacific Halibut Fishery Convention between the United States and Canada, signed March 2, 1953. The new regulations cover: regulatory areas; length of halibut fishing seasons; closed seasons; catch limits in Areas 2, 3A, 3B and 3B North Triangle; size limits; licensing of vessels; retention of halibut taken under permit; conditions limiting validity of permits; and statistical return by vessels. They also concern statistical return by dealers; dory gear prohibited; retention of halibut taken by nets; retention of tagged halibut; responsibility of master; supervision of unloading and weighing; sealing of fishing equipment; and previous regulations superseded.

#### HERRING:

"Change of the Fact Factor in White Sea Herring in Connection with the State of the Sexual Products," G. A. Bogdanov, article, Chemical Abstracts, vol. 57, October 29, 1962, 11685g, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20037.

"Smalsild- og Feitsildtokt med F/F G.O. Sars i Tiden 15 September til 10 Oktober 1963" (Small Herring and Fat Herring Exploratory Cruise on Board R/V G. O. Sars between September 15 and October 10, 1963), by Olav Dragesund, article, Fiskets Gang, vol. 50, no. 3, January 16, 1964, pp. 48-53, illus., printed in Norwegian. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

#### INDIA:

Fish Technology News Letter, vol. IV, no. 4, January 1964, 12 pp., processed. Central Institute of Fisheries Technology, Ernakulam, India. Includes, among others, "Canning of Tuna in Oil," "Sampling of Fresh

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Fish Products; "Fishery Products of Commerce. I--Shark Fins;" "Pasteurization of Peeled Prawns;" "Salmonella Organisms in Fish Meal;" and "A Comparative Account of the Rotting Resistance of Netting Twines of Vegetable Origin."

**LIN:**  
Studies on Insulin. III--On the Structure of the Amino Acid Chain of Bonito Insulin," by Akira Kotaki, *Journal of Biochemistry*, vol. 51, April 1962, pp. 301-309, printed. Charles E. Tuttle Co., 28-30 Main St. Rutland, Vt.

**INTERNATIONAL COMMISSIONS:**  
International North Pacific Fisheries Commission) Proceedings of the Tenth Annual Meeting, 1963, 254 pp., illus., processed, February 28, 1964. International North Pacific Fisheries Commission, 6640 NW Marine Dr., Vancouver 8, B.C., Canada. Presents the minutes of sessions and committee reports of the meeting held at Vancouver, Canada, November 18-23, 1963, and summary minutes of an informal session of the Commission held in Tokyo, Japan, on October 4, 1963.

**ISRAEL:**  
Bamidgeh, vol. 15, no. 4, December 1963, 32 pp., illus., printed. Bamidgeh, Nir-David D.N., Israel. Contains these articles: "Current Problems in Fish Culture," by S. Tal; "Fisheries and Fish Culture in Israel in 1962," by S. Sarig; and "Ten Years of Research in Fish Ponds Fertilization in Israel. 2--Fertilizers Dose and Frequency of Fertilization," by B. Hepner.

**JAPAN:**  
Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, no. 10, October 1963, 77 pp., illus., printed in Japanese with English abstracts. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan. Contains, among others, articles on: "Chronological Life Record Curve Method for Identifying Each Stock of Pelagic Fishes. V--Identification of Sardine Stocks in Coastal Waters of Hokkaido," by Hideaki Yasuda, Kichie Kaga, and Ryosuke Hayano; "VI--Identification of Sardine Stocks in the Pacific Coast of Honshu and Kyushu," by Hideaki Yasuda and Kazuhiko Minowa; "Experimental Use of Fish Pumps in Various Phases of Fisheries. III--Causes for Damage of Shellfish Collected by Pumping," by Yoza Tawara and others. "Fish Schools Attracted by Light Stimuli Observed in the Operation of Hasso-Ami or Eight-Boat-Lift-Net," by Makoto Hasegawa; "Spawning Experiments of the Common Squid, *Loligo macleod*," by Mototsugu Hamabe; and "Feed Efficiency of Fish Meal. I--Relation between Oxidation and Feed Efficiency of Fish Meal; II--Digestibility of Fish Meal Treated with Various Solvents," by Kuman Saruya and others.

Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, no. 11, November 1963, 98 pp., illus., printed in Japanese with English abstracts. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan. Includes, among others, articles on: "Studies on Reproduction of Rainbow Trout, *Salmo gairdneri*, with Special Reference to Egg Taking.

V--Development of Gonads and Size of Fish Spawnd Firstly," by Minoru Nomura; "Serological Identification of Breeding Subpopulations of Fin Whales Taken from the Gulf of Alaska and the West Coast of British Columbia," by Kazuo Fujino; "Manometric Studies on the Respiration of a Marine Alga, *Porphyra tenera*. II--Influence of Some Growth Substances, Nitrogen Compounds and Reappraisal of the Influence by Drying and pH," by Eizi Ogata and Toshio Matsui; "Distribution Pattern of Sharks Along Setline" (in English), by Hiroshi Maeda; "On the Growth Effect of Vitamin A in Fish Liver Oil on Chicken (in English), by Haruo Baba; "Studies of the Effects of Marine Products on Cholesterol Metabolism. I--The Effects of Edible Seaweeds," by Takashi Kaneda, Setsuko Tokuda, and Kimie Arai; and "Discoloration of Lyophilized Fish," by Masamichi Toyomizu, Fusetsu Orita, and Yukio Tomiyasu.

Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, no. 12, December 1963, 130 pp., illus., printed in Japanese and English. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-Kaigandori 6, Minato-Ku, Tokyo, Japan. Contains, among others, these articles: "Catch Pattern of Squids under Lamp, in Relation to Quantity of Catch," by Hiroshi Maeda and Yutaka Nakada; "Identification of Breeding Subpopulations of the Sperm Whales in the Waters Adjacent to Japan and Around Aleutian Islands by Means of Blood Typing Investigations," by Kazuo Fujino; "Behaviour of Sweep Line in Danish Seining. I," by Otohiko Suzuki; "Studies on Bacterial Loan of Fish Container. II--On the Fate of Takikawa's So-Called Pathogenic Halophilic Bacteria Invaded into Materials of Wooden Container; III--Disinfection of Wooden Fish Container Polluted with Takikawa's So-Called Pathogenic Halophilic Bacteria," by Akiya Kurogi.

Fisheries Cooperatives Law, 50 pp., printed in Japanese. Fisheries Agency, Tokyo, Japan.

Fishery Vessel Insurance Statistics, 33 pp., illus., printed in Japanese. Japanese Fishery Agency, Tokyo, Japan.

Fishing Vessels Loss Compensation Law and Related Regulations, 277 pp., printed in Japanese, reprinted July 1963. Fisheries Agency, Tokyo, Japan.

Journal of the Faculty of Fisheries and Animal Husbandry, Hiroshima University, vol. 5, no. 1, December 1963, 278 pp., illus., printed in Japanese and English. The Faculty of Fisheries and Animal Husbandry, Hiroshima University, Fukuyama, Japan. Includes, among others, these articles: "Relationship between Tidal Range and Catch of Pound Net in Kasaoka Bay," by Shumpei Kakuda; "On Four Newly Known Species of Octopoda from Japan," by Iwao Taki; "Note on the Fishing Condition of the Yellow Tail Set Net Fishery in the Tohoku, Tokai and Nankai Sea Regions of Japan," by Sadaichi Nishikawa; and "Chemical Studies on Fish Solubles. I--Vitamin Contents and Amino Acid Composition of Commercial Fish Solubles," by Keiji Ito and Shiro Sato.

Mutual Aid Regulations No. 1--Fire Mutual Aid Regulations, 22 pp., printed in Japanese. National Fisheries Cooperatives Mutual Aid Association, Tokyo, Japan.



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Mutual Aid Regulations No. 2--Welfare Mutual Aid Regulations, 66 pp., printed in Japanese, revised August 1, 1963. National Fisheries Cooperatives Mutual Aid Association, Tokyo, Japan.

Statistic Tables of Fishing Vessels (as of the End of 1962), General Report No. 15, 308 pp., illus., printed in Japanese and English. Japanese Fisheries Agency, Tokyo, Japan. An annual report containing statistical data in detail on the various types of Japanese fishing craft, both powered and nonpowered, as obtained by a fishery registration system. The statistics seem to show that the Japanese fishing fleet has not only restored its prewar status but increased its capacity rapidly after World War II.

#### LINGCOD:

Glycolysis in Lingcod Muscle during Frozen Storage, by N. Tomlinson, R. E. E. Jonas, and S. E. Geiger, Reprint No. 752, 8 pp., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 20, no. 5, 1963, pp. 1145-1152.) Technological Research Laboratory, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

#### MARINE AIDS:

Light List, vol. 1--Atlantic Coast, St. Croix River, Maine to Little River, South Carolina, 562 pp., illus., printed, 1964, \$3.50. U. S. Coast Guard, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) A light list for the northern and central Atlantic Coast of the United States was issued recently by the U. S. Coast Guard. Contains locations of lights, fog signals, buoys, daybeacons, lightships, radio-beacons, and loran stations from St. Croix River, Maine to Little River, South Carolina. Areas covered include the First, Third, and Fifth Coast Guard Districts. Intended to furnish more complete information concerning aids to navigation than can be conveniently shown on charts. Not intended to be used in navigation in place of charts and coast pilots.

#### MARINE RESOURCES:

"Oceans in 1984: New and Richer Marine Harvests Forecast," by Alister Hardy; "Working Deep in the Sea," by Edwin A. Link; "A Long View from the Beach," by Roger Revelle, articles, New Scientist, vol. 21, no. 379, February 20, 1964, pp. 482-487, illus., printed, single copy 1s. 3d. (about 20 U. S. cents). Cromwell House, Fulwood Pl., High Holborn, London WC1, England. A symposium on the subject of accomplishments to be expected in the development of marine resources within the next 20 years. By 1984, the world's food supply should be greatly increased as a result of the growth of fish-farming facilities and the harvest of krill, a planktonic shrimp, for human consumption. Man will be able to travel to the ocean's depths to work at such tasks as oil drilling, mining, fish culture, or the garnering of underseas crops. Scientists can expect changes in fish populations as the result of warmer ocean currents in some areas; control of weather as a product of increased knowledge of the influence of the ocean's energy potential on the evolution of hurricanes; and even the "taming" of porpoises in consequence of an understanding of their behavior.

#### MARKETING:

"Fishmen Angle for Two Fridays," article, Business Week, no. 1798, February 15, 1964, pp. 74-75, 77, illus., printed, 50 cents. McGraw-Hill, Inc., 330 42nd St., New York, N. Y. 10036. Currently the fish and shellfish-processing industry is mounting a campaign to create more appetite for its products. It is counting heavily on improved processing, more "fish and eat" items. There is even a drive on to erase the restrictiveness of the "fish on Fridays" habit. The search for new markets is focused largely on institutions and overseas.

#### MENHADEN:

Menhaden--Natural Resource from the Pastures of the Sea, 15 pp., illus., printed. Public Relations Branch, Industrial Products Division, National Fisheries Institute, 1614 20th St. NW., Washington, D. C. Describes with the help of many photos, the menhaden physiological and chemical properties of menhaden meal, oil, and solubles; the menhaden fleet and its operations; processing of the catch at the plants; biological research on this species; uses of menhaden products in feeds, fertilizers, margarine, paints, and other products; and the use of spotter planes in the fishery.

#### METABOLISM:

"Influence of Environment on the Metabolism of Iodine in Fish," by Cleveland P. Hickman, Jr. (University of Alberta, Edmonton, Canada), article, Chemical Abstracts, vol. 57, October 15, 1962, 10368d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### MEXICO:

Foreign Trade Regulations of Mexico, OBR 64-27, 15 pp., printed, March 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.) Mexico's industries and their domestic markets are protected by high tariffs and import controls. Two exceptions, however, to the restrictive trade policy exist: in the northwest, industrial and consumer goods are being imported free of duty under special customs provisions; and regard to other members of the Latin American Free Trade Association, Mexico grants exclusive tariff trade control preferences. The report discusses Mexico's trade policy, import tariff system, documentation and fees, labeling requirements, and special customs provisions. Also covers nontariff import trade controls, Mexico's export controls, U. S. States foreign trade controls, and diplomatic representation between the two countries.

Labor Law and Practice in Mexico, BLS Report No. 240, 76 pp., illus., printed, November 1963, 45 cents. Bureau of Labor Statistics, U. S. Department of Labor, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Discusses Mexico's geographic setting, manpower resources, culture and customs, education and health, and government legislation to labor. Also covers industrial relations and allowances; hours of work and premiums; safety

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insurance, and services; and employment practices. Included are statistical tables showing data on gross national product; labor force, by age group, economic sector, industry, class of worker, and occupational group; average weekly wages of manual workers; and other similar information.

#### LUSCS:

Cyribonucleic Acids of Marine Mollusca, by Michael Smith and D. B. Quayle, Reprint No. 756, 2 pp., printed. (Reprinted from *Nature*, vol. 200, no. 507, November 16, 1963, p. 676.) Technological Research Laboratory, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

#### SELS:

Mejillon como Primera Materia para la Conserva (The Mussel as Raw Material for Canning), by Buena Ventura Andreu, 7 pp., illus., printed in Spanish. Reprinted from *Informacion Conservera*, no. 119-120, November-December 1963.) *Informacion Conservera*, Colon, 62, Valencia, Spain.

#### WFOUNDLAND:

Newfoundland Fishing, by John Corlett, Laboratory Leaflet (New Series) No. 1, 20 pp., illus., processed, December 1962. Fisheries Laboratory, Ministry of Agriculture, Fisheries and Food, Lowestoft, England. Discusses history of the Newfoundland fisheries, hydrography and ice, cod stocks and fishing, cod catch and effort, haddock, ocean perch and flounder, and effect of fishing and future prospects.

#### N JERSEY:

Fish and Game Laws of New Jersey, 1964 and until Repealed, 221 pp., printed. Division of Fish and Game, Department of Conservation and Economic Development, P.O. Box 1809, Trenton, N.J. 08625.

#### N ZEALAND:

Foreign Trade Regulations of New Zealand, by Maurice E. Birch, OBR-64-4, 12 pp., printed, 15 cents, January 1964. 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., (402.) The Government's import policy is aimed at using its foreign exchange for either essential producer goods to expand the economy or for non-locally manufactured consumer items. This report discusses trade policy, import tariff system, sales and other internal taxes, documentation and labeling and marking requirements. Also covers special customs provisions, nontariff import trade controls, New Zealand's export controls, United States foreign trade controls, and diplomatic representation between the two countries.

#### NWAY:

Bmelding og Rekneskap for Noregs Sildesalslag, 1963 (Annual Report and Accounts for Norwegian Herring Sales Organization, 1963), 48 pp., printed in Norwegian, 1963. Noregs Sildesalslag, Bergen, Norway.

Bmelding og Rekneskap for Sild- og Brisling- Salslaget, 1962 (Annual Report and Accounts for Norwegian Small and Fat and Sprats and North Sea Herring Sales Organization, 1962), 44 pp., printed in Norwegian. Sild- og Brisling- Salslaget, Bergen, Norway.

Fiskeflaten, 1962 (Fishing Fleet, 1962), *Arsberetning Vedkommende Norges Fiskerier 1962--No. 13*, 31 pp., illus., printed in Norwegian, 1963. Fiskeridirektoren, Bergen, Norway.

Fiskeristatistikk 1961 (Fishery Statistics 1961), 87 pp., illus., printed in Norwegian with English preface, table of contents, and summary, June 12, 1963. Fiskeridirektoratet, Bergen, Norway.

Norway Exports, no. 3, Autumn 1963, 89 pp., illus., printed. Export Council of Norway, H. Heyerdahls Gate 1, Oslo, Norway. A few facets of Norway's processing of fish are spotlighted in this issue. In particular, the progress of the fish-canning industry is reported, and likewise the cod-liver oil industry. Considerable space is devoted to packaging of various types and also to packaging materials, particularly paper and board. Fishing vessel research, development of sonar fish-detection equipment and echosounders, and production of fishing nets and lines are also emphasized.

"Toktprogram 1964" (Exploratory Cruise Program for 1964), article, *Fiskets Gang*, vol. 50, no. 4, January 23, 1964, pp. 65-72, printed in Norwegian. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

Trawling Prospects Off West Norway, by Peter Woodhead, Laboratory Leaflet (New Series) No. 4, 20 pp., illus., processed, September 1963. Fisheries Laboratory, Ministry of Agriculture, Fisheries and Food, Lowestoft, England. Describes the results of fishing and echo surveys by the R/V *Ernest Holt* on the banks off West Norway, principally *Svinoy* and *Halten Banks*. Catches consisted mostly of coalfish and "spurdogs." There is also information from German and Norwegian sources.

#### OCEANOGRAPHY:

"Britain's National Institute of Oceanography," by Victor K. McElheny, article, *Science*, vol. 144, no. 3615, April 10, 1964, pp. 160-163, illus., printed, single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005.

Denkschrift Zurlage der Meeresforschung (Memorandum on the Status of Oceanographic Research), by Gunther Bohnecke and Arwed H. Meyl, 131 pp., illus., printed in German, 1962. Franz Steiner Publishing Firm, Wiesbaden, Germany. Includes chapters on international oceanographic organizations, tasks of individual research disciplines in oceanography, the present situation of research institutions engaged in oceanography in the Federal Republic, a description of a new research ship and a fold-in diagram showing her compartmentation.

The International Indian Ocean Expedition: A Status Report, by Irvin E. Wallen, 9 pp., illus., printed. (Reprinted from the *Journal of the Washington Academy of Sciences*, vol. 54, 1964, pp. 45-53.) Museum of Natural History, Smithsonian Institution, Washington, D. C. 20560. Out of the International Geodetic Year (IGY) of 1957-58, grew the Special Committee of Oceanic Research (SCOR), parent organization of the International Indian Ocean Expedition (IIOE). A member of SCOR had suggested that over an appropriate period of

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time many ships should visit the Indian Ocean, making standard observations and collecting data for a detailed description of its physical, chemical, biological, and geological characteristics. The Indian Ocean was chosen because it possesses unique geographical, meteorological, and hydrographic features, and also because little oceanographic research had been conducted there prior to 1957. Participants presently include 20 countries. The United States is represented by 14 vessels and 5 aircraft sponsored by Government and private agencies. Five shore stations in Madagascar and India cooperate with the expedition in administrative, logistic, and research matters. The Inter-Governmental Oceanographic Commission in Paris has responsibility for international interchange of published data. In addition to diverting vessels of American oceanographic institutions from research programs in the Atlantic or Pacific Oceans, the United States also has converted two vessels for use during the IIOE. One of these is the *Te Vega*, a two-masted steel-hulled schooner; the other is the *Anton Bruun*, formerly the Presidential yacht, *Williamsburg*, designated principal research vessel for biological oceanography in IIOE. In addition to routine determinations of physical and chemical characteristics of the sea water, and plankton sampling, the latter vessel undertakes other special projects. Intensive sampling with Gulf shrimp trawls, Isaacs-Kidd midwater trawls, gill nets, long lines, dip nets, aqualungs, and other devices assist in an evaluation of the fishery potential in the Indian Ocean. The distribution of adult tunas, marlins, and sharks are being studied by the U. S. Bureau of Commercial Fisheries in relation to water temperature and ocean circulation during the two monsoon seasons. The biological specimens collected are partially sorted on board the vessels, where they are preserved, carefully packed, and sent to the Smithsonian Oceanographic Sorting Center in Washington, D. C. At the end of 1963, over one million specimens, including 17,427 species of fish from 133 families, had already been sorted for further study.

"The Oceans and the Future," by Anthony Harrigan, article, *Navy*, vol. 7, no. 4, April 1964, pp. 6-10, illus., printed, single copy 25 cents. Navy League of the U. S., Mills Bldg., Washington, D. C. 20006. To view contemporary sea power in proper perspective, it is essential to consider the changing value of seaspace and the contents of the oceans, according to the author. The central point to consider is the unprecedented rise in the world's population. Where as sea power once was necessary to invasion of land areas, nations in the near future, if they are to feed their populations, must be sure of the harvests of the oceans. The nations will turn more and more to the seas for food, oil, water, and minerals as population pressures mount.

#### OREGON:

*Foodfish for the Future*, by Charles P. Selden and Irving W. Jones, Educational Bulletin No. 1, 22 pp., illus., printed, 1958. Fish Commission of Oregon, 307 State Office Bldg., 1400 SW. 5th Ave., Portland, Ore. 97201. Discusses the types of food fish caught in Oregon waters--salmon, bottomfish, albacore tuna, crabs, and clams; management of the fishery resources by the State Fish Commission; and initiation

of fishery management program by research biologists. Also covers putting management programs into action, operation and goals of salmon hatcheries and importance of awareness by the public of fishery conservation programs.

#### OTOLITHS:

*Role of Otoliths in Taxonomic Analysis of Fish*, USSR, by D. K. Khalaturin, OTS 64-21244, 6 pp., printed, January 9, 1964, 50 cents. (Translated from the Russian, *Doklady Akademii Nauk SSSR*, vol. 152, no. 2, 1964.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

#### OYSTERS:

"Biochemical Studies on *Ostrea gigas*, X--On the Seasonal Variations of the Distribution of Copper and Zinc in Various Organs," by Akira Hayashi Kinki University, Fuse, Osaka, Japan, article, *Chemical Abstracts*, vol. 57, August 20, 1962, 5133e, printed, American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

*Measurement of Shell Growth in Oysters by Weighing in Water*, by Jay D. Andrews, Contribution No. 110, II pp., illus., processed. (Reprinted from *Proceedings of the National Shellfisheries Association*, vol. 52, 1961.) Virginia Institute of Marine Science, Gloucester Point, Va.

#### PERCH:

*Perch Anatomy*, a film, (16 minutes, sound, color or black and white). Audio Visual Center, Indiana University, Bloomington, Ind. Functions of external perianatomy in relation to the environment; and dissection of the fish, illustrating digestive, excretory, circulatory, reproductive, and central nervous systems.

#### PESTICIDES:

"Pesticides--In Our Ecosystem," by Frank E. Egler, article, *American Scientist*, vol. 52, no. 1, March 1964, pp. 110-136, illus., printed. Single copy \$1. Sigma Xi, 51 Prospect St., New Haven, Conn.

#### PHILIPPINES:

*Establishing a Business in the Philippines*, by Kenneth A. Guenther, OBR 64-11, 16 pp., printed, February 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20540.) A report offering information helpful to United States citizens interested in organizing a business in the Philippines, was released recently by the U. S. Department of Commerce. To attract foreign capital, the government has adopted a generally favorable investment policy. The major step in the creation of this policy was the removal of restrictions, early in 1962, on dividends, royalty and sundry remittances and the repatriation of capital. The report discusses U.S. commercial interests in the Philippines, Government policy concerning foreign investments, business organization, and registry and bookkeeping requirements. Also covers trademarks and patents, labor and employment, taxation, bidding procedures for government procurement, and chambers of commerce.

#### PHYSIOLOGY:

"Psychophysics and Hearing in Fish," by William N. Tavolga, article, *Natural History*, vol. LXXIII, no.



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March 1964, pp. 34-41, illus., printed, single copy 50 cents. The American Museum of Natural History, Central Park W. at 79th St., New York, N. Y., 10024.

#### LAND:

Zjednoczenie Gospodarki Rybnej, 1964 (Fisheries Central Board, 1964), 41 pp., illus., printed in Polish and English. Zjednoczenie Gospodarki Rybnej, Swietokrzyska 12, Warsaw, Poland. This attractively illustrated booklet offers information on the status of the Polish fishing industry. Covers, in tabular form, development of the post-war fishing fleet; total landings, 1938-1961; fishing enterprises; fish-processing plants; wholesalers, retailers, and exporters; and scientific institutes and other institutes incorporated in the Fisheries Central Board. Also discusses briefly fisheries cooperatives, scope of the fishery export trade, the engineering company for refrigeration and mechanization of fisheries, and fisheries schools.

#### EDATORS:

Spotlight on the American Whelk Tingle, by D. A. Hancock, Laboratory Leaflet (New Series) No. 2, 11 pp., illus., processed, December 1962. Fisheries Laboratory, Ministry of Agriculture, Fisheries and Food, Burnham-on-Crouch, Essex, England.

#### TEINS:

Comparison of the Efficiencies of Free Lysine and Roller-Dried Skim Milk, Fish Protein, and Soybean Protein for the Supplementation of Wheat Bread, by L. E. Ericson, S. Larsson, and G. Lid (Royal Institute of Technology, Stockholm Sweden), article, Chemical Abstracts, vol. 58, June 10, 1963, 3053d, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

Proteins from Petroleum Reported by Esso, BP, article, Oil, Paint and Drug Reporter, vol. 182, December 17, 1962, p. 5, printed. Schnell Publishing Co. Inc., 30 Church St., New York, N.Y. 10007.

Studies on a Herring-Egg Phosphoprotein, by T. E. Gorman, Nguyen-kim Bai, and Nguyen-Van Thoai, article, The Biochemical Journal, vol. 90, no. 3, March 1964, pp. 555-558, illus., printed, 40s. (3.75 in the United States). Cambridge University Press American Branch, 32 E. 57th St., New York, N. Y. 10022.

#### LITY:

Studies on the Browning of Fish Flesh. X--Change Reflectance by Heat Treatment, by Fumio Nagama and Kimihiro Sano, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 28, August 1962, pp. 828-832, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

#### ATION PRESERVATION:

Recent Research on Food Preservation by Ionizing Radiation in Germany, by U. Schutzsack, article, Food Irradiation, vol. 3, April-June 1963, pp. A22-A25, printed. Interdepartmental Committee on Radiation Preservation of Food, U. S. Department of Commerce, Washington, D. C. 20230.

#### RADIOACTIVITY:

"Accumulation of Radioactive Strontium and Yttrium in Eggs of Marine Fish", by G. G. Polikarpov and V. N. Ivanov (Biological Station, Academy of Science, U.S.S.R.), article, Chemical Abstracts, vol. 57, October 15, 1962, 10370h, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### REFRIGERATION:

Kholodil'naia Tekhnika, no. 1, 1964, 80 pp., illus., printed in Russian with English table of contents. Kholodil'naia Tekhnika, U.I. Kostyokova 12, Moscow I-434, U.S.S.R. (For sale by the Four Continent Book Corp., 822 Broadway, New York, N. Y. 10003.) Includes, among others, these articles: "Utilization of Polymer Films when Freezing and Storing Fish," by G. S. Konokotin and L. P. Zuikova; and "Ammonia Pump Circulation Cooling System of Reconstructed Fish Cold Store in Poti," by V. I. Matveyev.

#### RESEARCH VESSEL:

"To Sea in a Saucer", article, Business Week, no. 1798, February 15, 1964, pp. 88-89, 92, 94, illus., printed, 50 cents. McGraw-Hill, Inc., 330 W. 42nd St., New York, N. Y. 10036. The Cousteau diving saucer, designed by the man who invented the Aqualung, can submerge to 1,000 feet with safety and still provide a large degree of freedom. The saucer, which looks like a squashed ellipsoid, is less than 10 feet in diameter and about 5 feet thick. Propelled by two water jets powered by batteries, the vessel carries a pilot and an observer.

#### SALMON:

Abundance, Size and Age of Red Salmon Smolts from the Wood River System, 1963, by Michael L. Nelson, Informational Leaflet 37, 22 pp., illus., processed. Alaska Department of Fish and Game, Subport Bldg., Juneau, Alaska.

Bristol Bay Red Salmon, 1963--A Compilation of the Catch and Escapement Data, edited by Donald B. Siff, Informational Leaflet 35, 185 pp., illus., processed. Department of Fish and Game, Subport Bldg., Juneau, Alaska.

Forecast Research on 1964 Alaskan Pink Salmon Fisheries, by Wallace H. Noerenberg and others, Informational Leaflet 36, 55 pp., illus., processed, March 10, 1964. Alaska Department of Fish and Game, Subport Bldg., Juneau, Alaska. In 1963, the Department of Fish and Game expanded research on Alaska's most important species, pink salmon, *O. gorbuscha* (Walbaum), into Southeastern Alaska, Cook Inlet, and Kodiak areas on the basis of work done since 1960 in Prince William Sound. Thus, the most important production areas came under study; packs of pink salmon in those areas accounted for over 53 percent of the total Alaska salmon pack of all species in 1963, and 47 percent in 1962. The primary objective of the present pink salmon research program is forecast of annual runs in each area. Accurate forecasts, within 20 percent of actual returns, will make it possible to manage and harvest the major pink salmon stocks far more efficiently, regardless of whether they are at high or low levels of production. The definition of optimum escapement, maximum sustained yield, and

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effects of logging are being studied where possible as secondary projects under the forecast program. This report discusses results of research in the four areas and presents statistical tables showing data on parent escapement, outmigration of salmon fry, catches, population densities, and other information.

Olfactory Perception in Migrating Salmon. III--Stimulants for Adult Sockeye Salmon (ONCORHYNCHUS NERKA) in Home Stream Waters, by U. H. M. Fagerlund and others, Reprint No. 755, 7 pp., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 20, no. 6, 1963, pp. 1457-1463.) Technological Research Laboratory, 6640 NW. Marine Dr., Vancouver 8, B. C.

2-Phenoxyethanol as a General Anaesthetic for Sockeye Salmon, by H. S. Sehdev, J. R. McBride, and U. H. M. Fagerlund, Reprint No. 754, 6 pp., illus., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 20, no. 6, 1963, pp. 1435-1440.) Technological Research Laboratory, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

#### SARDINES:

"Determination of Vitamin K<sub>2</sub> in the Portuguese Sardine," by A. Forjaz, L. Brito, and L. Manso (Instituto Portuguese Conservas Peixe, Lisbon, Portugal), article Chemical Abstracts, vol. 54, July 25, 1960, 14494d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### SHARKS:

"Sodium Chondroitin Sulfate-Protein Complexes of Cartilage. III--Preparation from Shark," by Mark B. Mathews (University of Chicago), article, Chemical Abstracts, vol. 57, August 6, 1962, 3764d, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

Sound Perception in Elasmobranchs, by W. J. Wisby and others, Contribution No. 493, 14 pp., illus., printed, 1964. (Reprinted from Marine Bio-Acoustics--Proceedings of a Symposium Held at Bimini, Bahamas, April 1963, pp. 255-268.) The Marine Laboratory, Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla. Results of a study to determine hearing function of sharks and other elasmobranchs. Discusses the sensory organs--labyrinth, lateral line, and ampullae of Lorenzini; unconditioned and conditioned responses to low-frequency sounds; field tests of the attraction of sharks to sounds of a struggling fish; and future plans for research in that field.

#### SHRIMP:

Freezing Preservation of the Shrimp. Development of This Industry in Morocco. Trials on the Value of Certain Substances Used as Additives in Freezing, by P. Chaponneaux, 80 pp., printed. These Veterinaire, Ecole Nationale Veterinaire, d'Alfort No. 3, Paris, France.

#### SMALL BUSINESS MANAGEMENT:

The Use of Consultants by Manufacturers, by David C. Ekey and W. David Robbins, Management Research

Summary, 2 pp., processed, 1963. Small Business Administration, Washington, D. C. 20416. The study on which the report is based shows an increasing use of management consultants by manufacturers in recent years. The results indicate that some firms have developed the art of utilizing consultants profitably, while others are quite unsuccessful. From a depth interviews with 75 firms, it was learned that where management had recognized that a problem existed and sought the assistance of a consultant, consulting experience was usually quite satisfactory. The report includes fundamental principles for selection and successful use of consultants, as well as the basic causes for failure in consulting experience.

#### SMOKING:

"Electrostatic Smoking," article, Food Engineering, vol. 35, August 1963, p. 54, printed. Chilton Co., Chestnut and 56th St., Philadelphia 36, Pa.

"Influence on the Method of Smoke Generation on the 3,4-Benzopyrene Content in Smoke and Smoked Fish by O. P. Gretskaya and others, article, Rybnoe Khoziaistvo, vol. 38, no. 3, 1962, pp. 56-62, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia Moscow, U.S.S.R.

#### SOUTH AFRICA REPUBLIC:

Fisheries Development Corporation of South Africa Limited--Nineteenth Annual Report (Covering Period 1st October, 1962, to 30th September, 1963), 16 pp., printed in Afrikaans and English, February 14, 1964. Fisheries Development Corporation of South Africa Ltd., Seafare House, 68 Orange St., Cape Town, South Africa Republic. Presents brief reports on the status of the pilchard, maasbanker, mackerel, and spiny lobster fisheries; and activities of the Corporation. For the first time in 6 years, landings by the inland fisheries of South Africa and South West Africa showed a slight decline.

#### SPAIN:

"Exportacao Galega de Conservas de Peixe em 1964 (Galician Exports of Canned Fishery Products in 1962)", article, Conservas de Peixe, vol. XVIII, no. 214, January 1964, pp. 18-19, 21-22, printed in Portuguese. Sociedade da Revista Conservas de Peixe Lda., Regueirao dos Anjos, 68, Lisbon, Portugal.

"Informe sobre Evolucion del Comercio Interior de Productos Pesqueros en 1963 (Report on Development of Domestic Trade in Fishery Products in 1963)", article, Boletin de Informacion, no. 64, January 1964, pp. 15-16, printed in Spanish. Sindicato Nacional de la Pesca, Paseo del Prado, 18-20, 6<sup>a</sup> Planta, Madrid, Spain.

#### SPINY LOBSTER:

A Industria da Lagosta Espinhosa na Africa Austral (Um Estudo Economico) (The Spiny Lobster Industry in Southern Africa--An Economic Study), by Dom Jose Soares Rebelo, 16 pp., printed in Portuguese with English summary. (Reprinted from Boletim da Sociedade de Estudos de Mocambique, vol. 32, no. 1, April-June 1963, pp. 65-83.) Sociedade de Estudos de Mocambique, Lorencos Marques, Mozambique.

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## STANDARDS:

AFDOUS: Association of the Food and Drug Officials of the United States," article, Quick Frozen Foods, vol. 24, March 1962, pp. 195-196, 198, 200, 202-210, printed. E. W. Williams Publications Inc., 82 Wall Street, New York, N. Y. 10005. A complete publication of the AFDOUS frozen food handling code including: plant construction and layout; equipment design and construction; operating practices for processing as well as retail, transportation, and warehouse handling of frozen foods.

## SWORDFISH:

Development of Long-Line Fishing of Swordfish in the U. S. and Canada, with Some Emphasis on Its Effect on the U. S. Swordfish Fish Market, by Ryoichi Kiyohara, 15 pp., printed in Japanese, December 15, 1963. Japan Frozen Food Exporters' Association, Tokyo, Japan.

## TAGGING:

Tagging of Fishes in Florida, 1962 Program, by Robert Topp, Professional Papers Series No. 5, 2 pp., illus., printed, December 1963. Florida State Board of Conservation, Marine Laboratory, St. Petersburg, Fla.

Tagging Reef Fishes in the Virgin Islands, by John E. Randall, Contribution 362, 41 pp., illus., printed. Reprinted from Proceedings of the Gulf and Caribbean Fisheries Institute, Fourteenth Annual Session, November 1961, pp. 201-241.) The Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

## TENNESSEE VALLEY AUTHORITY:

Fish and Wildlife, Valuable Natural Resources, TVA, 2 pp., illus., printed, 1964. Fish and Wildlife Branch, Tennessee Valley Authority, Norris, Tenn.

## LITERATURE:

Studies on Lipids of Wild Rainbow Trout," by Yaihiro Shimma and Hisako Taguchi, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 28, January 1962, pp. 55-60, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

The Spray Frozen Tuna, Sodium, Potassium, Lactic Acid and Acid-Soluble Phosphorus in the Muscle, and the Influence Thereon of Thawing and Precooking, by N. Tomlinson and S. E. Geiger, Reprint No. 5, 5 pp., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 20, no. 5, 1963, pp. 1183-1187.) Technological Research Laboratory, 6640 NW. Marine Dr., Vancouver 8, B.C., Canada.

Fishing Locality, Fishing Effort, and Length-Frequency Data for Albacore Tuna Landed in Oregon, 1951-60, by Robert J. Ayers and James M. Meehan, Investigational Report No. 2, 187 pp., illus., processed, August 1963. Fish Commission of Oregon, Research Division, Clackamas, Ore. By comparing environmental changes with variations in albacore fishing success it may be determined whether these changes are responsible for fluctuations in seasonal appearance, distribution, and relative abundance of albacore.

This report is a compilation of catch and fishing effort data for Oregon albacore landings which may be compared with the information compiled on the oceanic environment. Statistical tables and graphs present data on sampling intensity for the Oregon albacore fishery, 1951-60; Oregon albacore landings by year, month, and port; percent of total Oregon landings assigned to one-degree blocks, 1951-60; albacore catches by year; length frequencies for landings at Astoria, Coos Bay, and Newport, by year and month; catch localities by month; and length-frequency distribution by month.

Report of a Survey for Tuna in Western Australian Waters, by J. S. Hynd and D. Vaux, Report 37, 133 pp., illus., processed, 1963. Commonwealth Scientific and Industrial Research Organization, Division of Fisheries, Marine Laboratory, Cronulla, Australia. This is a report of tuna explorations carried out in waters off the southwestern corner of Australia, from July 31, 1961, to July 17, 1962; biological examination was made of almost all fish taken (chiefly southern bluefin, *Thunnus maccoyii*); and hydrographical observations were made. Although the survey plans provided for fishing on a commercial scale whenever fish were found, only one small catch was taken and landed; the rest of the catch, consisting entirely of small fish, was used for tagging and other biological purposes. The presence of three groups of tuna was demonstrated. Conclusion was that it is unlikely that the type of vessel used would be able to make successful fishing in this area by the pole-and-bait method.

## TURKEY:

Balik ve Balıkcılık (Fish and Fishery), vol. XII, no. 1, January 1964, 35 pp., illus., printed in Turkish with English table of contents. Et ve Balik Kurumu G. M., Balıkcılık Mudurlugu, Besiktas, Istanbul, Turkey. Includes, among others, articles on: "A simple Current-Measuring Bottle for Fishermen;" "Some Chemical Investigations on the Horse Mackerel Which are Caught in Black Sea;" and "Basic Researches on the Development of Fishery in Turkish Freshwaters, Lakes and Dams (Part I)."

Labor Law and Practice in Turkey, BLS Report No. 239, 76 pp., illus., printed, March 1963, 45 cents. Bureau of Labor Statistics, U. S. Department of Labor, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington D. C. 20402.) Discusses Turkey's geographic setting, manpower resources, culture and customs, education and health, and government in relation to labor. Also covers industrial relations; pay and allowances; hours of work and premiums; safety, insurance, and facilities; and employment practices. Included are statistical tables giving data on population, by province, chief cities, and age group; distribution of labor force, by economic sector, and occupation; average earnings, by economic section; and other related information.

## TURTLES:

"The Fate of the Sea Turtles," by John Hillaby, article, New Scientist, vol. 20, no. 371, December 26, 1963, pp. 776-777, illus., printed, single copy 1s. (about 15 U. S. cents). Cromwell House, Fulwood Pl., High Holborn, London WC1, England. No other animals



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are more efficient at converting seaweed and other marine products into highly palatable eggs and meat than the sea turtles, but unless the present method of exploitation is rapidly changed the turtles seem doomed to extinction.

#### UNITED KINGDOM:

Fisheries of Scotland Report for 1962, Cmnd. 2022, 126 pp., illus., printed, 8s. 6d. (about US\$1.30). Department of Agriculture and Fisheries for Scotland, Aberdeen, Scotland. (Available from Her Majesty's Stationery Office, 13A Castle St., Edinburgh 2, Scotland.) Discusses principal accomplishments in the Scottish fisheries during 1962; means of capture and persons engaged--fishing fleet, number of fishermen, grants and loans to fishermen for purchase of vessels and gear; herring fisheries; whitefish fisheries; shellfish fisheries; and miscellaneous items--Outer Hebrides fisheries training program, byproducts production, and meteorological assistance. Also covers marine superintendence--coastal patrols, prosecutions for illegal trawling, seining, and other offences, and Trawling in Prohibited Areas Prevention Act, 1909; salmon fisheries--catch, value and employment, closed seasons, district boards, poaching and illegal fishing, drift-net fishing, and damage by seals to the fishery; fisheries research projects; and harbors--grants and loans for harbor improvement, and dredging. Appendices present statistical tables and explanatory material on herring distribution and disposal of landings; herring landings by area; methods of capturing herring; and whitefish--quantity and average price by species, fishing areas, landings by method and district, and foreign landing. Also included are information on salmon fisheries--annual closed seasons, details of catch, and report of Inspector; fisheries research--report of Director, and activities of Scottish Marine Biological Association laboratories; construction and improvement of harbors; and fisheries administration.

Foreign Trade Regulations of the United Kingdom, by Edward A. Leslie, OBR 64-14, 8 pp., printed, February 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) A report of value to businessmen interested in import-export trade with the United Kingdom. Since World War II, British tariffs have been gradually reduced on most products as a result of a series of multilateral negotiations held under the auspices of the General Agreement on Tariffs and Trade (GATT). The United Kingdom is an active member of the GATT, the Organization for Economic Co-operation and Development (OECD), and the European Free Trade Association (EFTA). The report discusses Britain'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, British export controls, United States export and import controls, and diplomatic representation between the two countries.

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

Developments in Fisheries of USSR, OTS 64-21431, 27 pp., illus., printed, January 30, 1964, 75 cents. (Translated from the Russian, Nauchno-Tekhniche-

skiy Byilleten' PINRO, nos. 1 and 4, 1962.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

Recent Developments in Soviet Ichthyology, OTS 63-41336, 84 pp., illus., printed, \$2.25, December 11, 1963. (Translated from the Russian, Voprosy Ikhtiologii, vol. 3, no. 3 (28), 1963.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

Roe Size-Dependent Fish Fertility, Fresh Water Fish Distribution, and Parasitofauna of Pond-Raised Catfish, OTS 64-21210, 42 pp., illus., printed, January 3, 1964, \$1.25. (Translated from the Russian, Voprosy Ikhtiologii, vol. 1, no. 2 (19), 1961.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C., 20235.

Soviet Studies on Fish, OTS 64-21480, 80 pp., illus., printed, February 4, 1964, \$2. (Translated from the Russian, Trudy Instituta Ikhtiologii i Rybnogo Khozyaystva Akademii Nauk Kazakhskoy SSR, vol. 4, 1963.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20235.

#### WASHINGTON:

Washington State Department of Fisheries, 1962 Annual Report, edited by Don Reed, 210 pp., illus., printed, Washington State Department of Fisheries, Rm. 115, General Administration Bldg., Olympia, Wash. Includes information on the activities of the Department of Fisheries during 1962 in salt-water research--chinook tagging, Puget Sound salmon fisheries, ocean sport fishery, Puget Sound herring fisheries, Bellingham Bay water quality study, otter-trawl fisheries, and 1962 troll season; and fresh-water research--prolonged fresh-water residence of juvenile fall chinook salmon, sonar fish counter, impoundment rearing study, and Columbia River scrapfish control study. Sections are also included on engineering and construction, fish farms, Columbia River fisheries, coastal investigations, power dam studies, stream improvement, sport salmon fishery during 1962, fisheries law enforcement, and reimbursable contract services program. Specialized problems are dealt with in chapters on the oysters projects, clam rearing, Willapa Bay shellfish management, coastal pink shrimp fishery, razor clam fisheries in 1962, fish feeding at hatcheries, egg takes at hatcheries, adult escapement to hatchery racks, and fish planted from State salmon hatcheries in 1962. A considerable portion of the report is devoted to 1962 fisheries statistics on commercial landings and fishway counts.

#### WEATHER CHARTS:

The following processed weather charts are published by the Weather Bureau, U. S. Department of Commerce, Washington, D. C., and are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402, 10 cents each. Charts show stations displaying small craft, gale, whole gale, and hurricane warnings; explanations of warning displays; and schedules of AM and FM radio, TV, and radiophore stations that broadcast weather forecasts and warnings.

Coastal Warning Facilities Chart, Eastern Florida, 1964.

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Warning Facilities Chart, Point Conception, Calif. to Mexican Border, 1964.

#### MEAT:

Utilization of Whale Meat in Sausage Manufacture," G. Babin and V. Gorbatov, article, Chemical Abstracts, vol. 58, January 7, 1963, 875f, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### FISHES:

"Whale Chase," by K. Godfrey, article, Fisheries Newsletter, vol. 23, no. 2, February 1964, pp. 15, 17, illus., printed. Fisheries Branch, Department of Primary Industry, Canberra, Australia. A year survey of sperm whale resources off the east Australian coast is being undertaken by the Commonwealth Scientific and Industrial Research Organization's Division of Fisheries and Oceanography under a £24,000 grant made by the Minister of Primary Industry from the Fisheries Development Trust Account. Aerial spotting, which will provide a substantial part of the information needed, started in April 1963, and this article describes the aspects of that work.

#### WHALING:

Verslag over het Zeventiende Boekjaar Lopende van 1 Juli 1962-30 Juni 1963 (Report of the Netherlands Whaling Company for the Fiscal Year July 1, 1962-June 30, 1963), 13 pp., printed in Dutch. Nederlandse Maatschappij voor de Walvisvaart N.V., Amsterdam, Netherlands.

"Value of Whale Products Falls," by D. J. Gates, article, Fisheries Newsletter, vol. 23, no. 2, February 1964, pp. 16-17, illus., printed. Fisheries Branch, Department of Primary Industry, Canberra, Australia. Estimated value of whale oil and byproducts in 1963 was £512,000, compared with £1,006,000 in 1962. Total number of whales taken was 686 (88 baleen, 598 sperm), 623 fewer than in the previous season. The International Whaling Commission (of which Australia is a member) meeting in July 1963 agreed that 3 species of baleen whales, the blue, fin, and humpback, should be further protected, and in regard to humpback whales agreed to prohibit their capture for an indefinite period in all waters south of the equator.

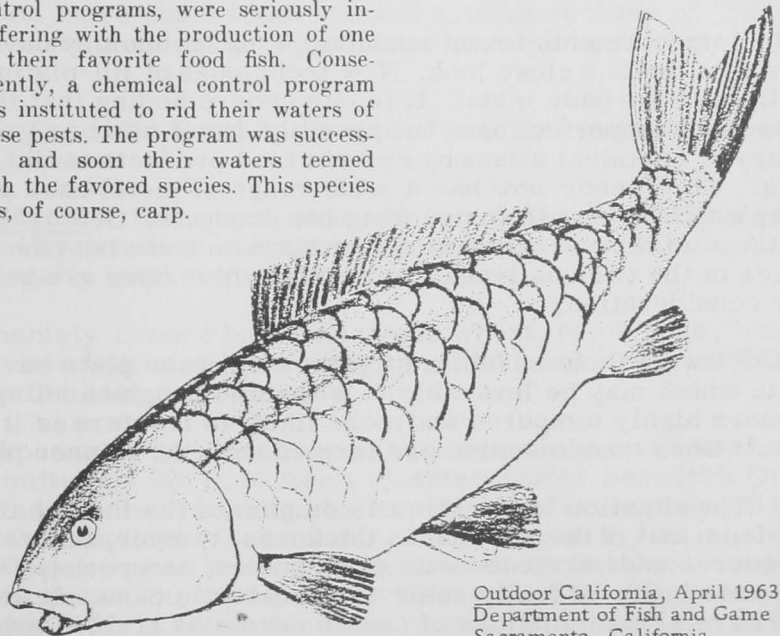


### A Difference in Philosophy

The introduction of carp into North America during the late 1800's was viewed by most anglers and fishery managers as a mistake of gigantic proportions. During the intervening years, carp and similar species—generally classed as "trash fish"—have been the objects of extensive, expensive, and often futile eradication campaigns. Even small numbers of carp are a favorite trout and bass waters make demands from anglers to "do something" to get rid of them. In this country, then, the carp is despised, and destroyed.

A brief note in a recent issue of The Progressive Fish Culturist is of particular interest since it dramatically illustrates the differences in outlook between East and West. In India, a country badly in need of animal protein, fishery workers were having problems—as they seem to have all over the world. Mosquitofish, the same species so popular in

the United States for use in mosquito control programs, were seriously interfering with the production of one of their favorite food fish. Consequently, a chemical control program was instituted to rid their waters of these pests. The program was successful and soon their waters teemed with the favored species. This species was, of course, carp.



Outdoor California, April 1963  
Department of Fish and Game  
Sacramento, California

## THE METAL FOOD CONTAINER AS THE REGULATORY OFFICIAL SEES IT

The very ruggedness of the metal container for packing food can lead to problems, says George P. Larrick, Commissioner of Food and Drugs, U. S. Department of Health, Education, and Welfare, in an address presented at the National Canners' Convention, Dallas, Texas, February 4, 1964. Excerpts from the talk follow:

"It is the very ruggedness of the metal container--the familiar tin can--which, because it is taken so much for granted, can lead to problems that I have been invited to comment upon. Our inspection of canning plants raises the question in our minds whether too much dependence is sometimes put in the ruggedness and fool-proof nature of cans. We see instances during the shipment, unloading, and conveying of empty cans and the subsequent handling of filled cans where the cans are treated so roughly that we wonder if they will be able to perform properly their function of maintaining an airtight and bacteria-tight barrier around their food contents. For example, cans are to an increasing extent being shipped jumble-packed in bulk containers, dumped into high speed unscramblers, and moved up and down and around by fast conveyors. There are many opportunities for them to come into violent contact with each other and with other objects. If the impact occurs on the lip of the can, may not a distortion occur that will result in an imperfect double seam when the lid is applied?

"Coming from the doubler seamer, cans are often allowed to fall into retort baskets or onto conveyor tracks in such a way that, we fear, the newly formed double seam or some other portion of the can may be ruptured or bent. The break in the integrity of the seal may be only momentary under the force of the impact, but this can be particularly dangerous if it occurs after processing and cooling when the can is rolling along wet, nonsterile or even insanitary surfaces where contaminated droplets of water may be sucked in during the temporary rupture.

"The hazards are multiplied as the speed of can-closing operations is increased and as labor-saving machinery replaces manual procedures. We are sure you agree that repeated reappraisals of safeguards are necessary to reduce and keep such hazards to a minimum.

"Improvements in can manufacturing technology have inevitably introduced other factors that invite a close look. New techniques of tin-plating yield thinner protective coatings of tin over the base metal. It is our understanding that the coatings are more uniform and have fewer imperfections, but possibly do not offer as great protection against mechanical injury or chemical attack by certain food products as did the old, heavier, hot-dipped platings. The canner now has a wide range of metal base plates and weights of tin coating from which to choose for packing his products. Generally this choice is made with the assistance of the can company scientists who know best the chemical and physical characteristics of the various types of cans and which ones are best adapted to the food product under consideration.

"New methods of fabricating the steel base plate have resulted in a thinner and lighter plate which may be less able to withstand rough handling, but we are also told such plate is more highly tempered and more likely to fracture as it is rolled into the tight angles that result when double seams are formed with the thinner plate.

"The situation is sometimes complicated by the use of lids made from tin plate differing from that of the can body in thickness, temper, and weight of coating. In other instances lacquered ends are used with plain bodies, and perhaps vice versa. This brings up again the possibility of faulty seals and nonsterile cans. It also stresses the need for frequent and careful examinations of double seams by trained specialists in the cannery to see that closing machines have the proper seaming rolls, chucks, etc., and are kept in proper adjustment.



"In the past, as regulatory officials we have felt a measure of reassurance in the belief that if the seams were faulty and the can leaked and became nonsterile, nothing worse than ordinary spoilage with obvious souring or gas formation would occur. This would be a financial loss to the packer, but posed no health hazard to the consumer who, even if the spoiled can reached her hands, would recognize its condition and reject it. The occurrence of Type Botulism in canned tuna last year, resulting in two deaths, fully demonstrated the danger that may lurk in cans with imperfect seals, for this appears to have been an important factor in that case. We have become convinced that we must now improve our own efforts to assure consumer protection against such rare occurrences.

". . . It is, of course, the canner's responsibility, as well as in his own interest, to maintain a close inspection of his empty and his closed cans to see that such injury does not occur and to spot and correct circumstances that make it likely. One of the points that our inspections are designed to cover will be the attention that the cannery gives to this matter. Other points will include the sanitary condition of can runways and the chlorine content of cooling water. . . .

"In conclusion, let me commend the industry, can-makers, and canners alike, on their record of producing billions of cans of safe, high-quality foods. At the same time I bespeak your continued care and watchfulness lest that splendid record be marred. Today, from a public relations point of view, one serious error in one plant can react to the great harm to an entire industry regardless of their over-all excellence."



## RADIATION AND FOOD

Consumers are hearing more and more about foods treated with some form of "radiation" to preserve them, or to kill insects or insect eggs, or to prevent sprouting, or to accomplish some other purpose.

They have begun to ask the U. S. Food and Drug Administration (FDA) questions about "irradiated" foods.

How safe is radiation-processed food? Under the requirements of the Food Additives Amendment of 1958, any food treated by irradiation must be proved safe to the satisfaction of FDA scientists before it can be legally marketed.

The irradiation of two foods, namely canned bacon and bulk wheat, has already been approved by FDA, and petitions for irradiation of a number of other foods are currently under consideration or may be expected soon.

Clearance for the irradiation processing of canned bacon and bulk wheat was based on evaluation of extensive data submitted by the U. S. Army Quartermaster Research Organization and others. The data included animal feeding studies conducted over many years which conclusively established that the irradiated foods under consideration are as wholesome and nutritious as conventionally-processed foods. Other data show that these foods, when irradiated according to approved processes, do not become radioactive and do not retain any lingering activity from irradiation. ("FDA Memo for Consumers," U. S. Food and Drug Administration, February 19, 1964.)