

# RECENT FISHERY PUBLICATIONS

## FISH AND WILDLIFE SERVICE PUBLICATIONS

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

- S - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
- L - FISHERY LEAFLETS.
- R - REPRINTS OF REPORTS ON FOREIGN FISHERIES.
- P - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
- F - FISH - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).
- W - WILDLIFE LEAFLET.

Number	Title
CFP-53	- Canned Fishery Products, 1963 Annual Summary (Revised), 18 pp.
CFP-54	- Industrial Fishery Products, 1963 Annual Summary (Revised), 9 pp.
CFP-57	- Fish Meal and Oil, May 1964, 2 pp.
CFP-564	- Shrimp Landings, March 1964, 5 pp.
CFP-501	- Hawaii Landings, 1963 Annual Summary, 4 pp.
CFP-516	- Chesapeake Fisheries, 1963 Annual Summary, 9 pp.
CFP-517	- Texas Landings, June 1964, 2 pp.
CFP-527	- Texas Landings, 1963 Annual Summary (Revised), 9 pp.
CFP-579	- Gulf Fisheries, 1963 Annual Summary, 16 pp.
CFP-581	- Gulf Coast Shrimp Data, August 1964, 20 pp.
CFP-583	- North Carolina Landings, October 1964, 4 pp.
CFP-584	- New Jersey Landings, October 1964, 3 pp.
CFP-591	- Alaska Fisheries, 1963 Annual Summary, 8 pp.
CFP-592	- Michigan, Ohio & Wisconsin Landings, September 1964, 4 pp.
CFP-595	- Mississippi Landings, August 1964, 3 pp.
CFP-596	- Maryland Landings, October 1964, 4 pp.
CFP-597	- Fish Meal and Oil, October 1964, 2 pp.
CFP-598	- Shrimp Landings, September 1964, 5 pp.
CFP-599	- Gulf Coast Shrimp Data, September 1964, 20 pp.
CFP-600	- North Carolina Landings, November 1964, 4 pp.
CFP-601	- New York Landings, October 1964, 5 pp.
CFP-602	- Rhode Island Landings, August 1964, 3 pp.
CFP-603	- Shrimp Landings, October 1964, 5 pp.
CFP-605	- Louisiana Landings, October 1964, 3 pp.
CFP-606	- Alabama Landings, October 1964, 3 pp.
CFP-607	- Virginia Landings, October 1964, 4 pp.
CFP-608	- Maine Landings, October 1964, 4 pp.

- CFS-3709 - Florida Landings, November 1964, 8 pp.
- CFS-3711 - Mississippi Landings, September 1964, 3 pp.
- CFS-3713 - California Landings, August 1964, 4 pp.
- CFS-3716 - Rhode Island Landings, September 1964, 3 pp.

Sep. No. 728 - Review of the Development of the Atlantic Coast Tuna Fishery.

Sep. No. 729 - How Tuna See A Net.

FL-522 - Separates from the Commercial Fisheries Review, 9 pp., revised July 1964. Contains a list of available reprints of articles from Commercial Fisheries Review, listed alphabetically by subject.

FL-588 - Index of Publications by the Branch of Technology, Bureau of Commercial Fisheries, 1955-59, Inclusive, by F. Bruce Sanford and Helen E. Plastino, 28 pp., 1964.

SSR-Fish, No. 483 - Intertidal Ecology and Life History of Pink Salmon at Olsen Creek, Prince William Sound, Alaska, by John H. Helle, Richard S. Williamson, and Jack E. Bailey, 28 pp., illus., Sept. 1964.

SSR-Fish, No. 486 - Salmon Tagging Experiments Along the South Shore of Unimak Island and the Southwestern Shore of the Alaska Peninsula, by Fredrik V. Thorsteinson and Theodore R. Merrell, Jr., 17 pp., illus., Oct. 1964.

SSR-Fish, No. 487 - Distribution and Seasonal Occurrence of Gymnodinium breve on the West Coast of Florida, 1954-57, by John H. Finucane, 17 pp., illus., Sept. 1964.

SSR-Fish, No. 490 - A Remote Controlled Underwater Photographic Surveillance System, by Paul J. Kruse, Jr., 18 pp., illus., Sept. 1964. Describes an underwater motion picture camera system which has been developed and used to study midwater trawling operations. The photographic equipment is handled by remote control from the vessel deck and records both trawl mechanics and fish escape reactions. The equipment has been tested and placed in operation in studies in the Gulf of Mexico.

SSR-Fish, No. 492 - Releases and Recoveries of Drift Bottles and Cards in the Central Pacific, by Richard A. Barkley, Bernard M. Ito, and Robert P. Brown, 33 pp., illus., 1964.

WL-460 - Fur Catch in the United States, 1963, 4 pp., 1964.



Annual Report of the Bureau of Commercial Fisheries Biological Laboratory, Beaufort, N. C., for the Fiscal Year Ending June 30, 1962, Circular 184, 42 pp., illus., September 1964. Presents information on research programs conducted by the laboratory including blue crab, menhaden, shad, Atlantic Coast striped bass, and radiobiological studies.

Annual Report of the Bureau of Commercial Fisheries Biological Laboratory, Beaufort, N. C., for the Fiscal Year Ending June 30, 1963, Circular 198, 26 pp., illus., Nov. 1964. Contains accounts of the work accomplished during FY 1963, including the Director's report covering research highlights, and participation in the Atlantic States Marine Fisheries Commission, training programs, and work conferences; the blue crab program in North Carolina and Florida; the menhaden program covering sampling and population studies and marking methods; the shad program with details on population dynamics and fishway studies; and the Atlantic Coast striped bass program in Albemarle Sound and Chesapeake Bay. Also included are summaries of library activities, seminars presented, meetings attended, and publications by staff members.

Commercial Fisheries of the United States, Conservation Note 2, 8 pp., illus., processed, revised Aug. 1964. Primarily for use as a teaching aid in schools, this leaflet describes briefly the biological and economic classification of fish and shellfish; what man must know--the fishery conservationist's work in learning the maximum sustainable yield for each species and predicting abundance, and in advising the fishing industry how to make the best possible catch without damage to the resource, how to get high-quality fishery products to the family table at a reasonable price, and how to make the best use of fish for industrial purposes. Also discusses the work of the U. S. Bureau of Commercial Fisheries in getting the needed facts--on life histories of various fish species, habitat, the food chain, tagging of fish, color marking, electronic fish finders and other apparatus, gear studies, exploratory fishing, preserving fishery products, developing new products, maintaining quality, and marketing fishery products; other information on marine mammals, international and interstate commissions, and the American catch, and gear and vessels required to land the catch. Two series of sketches depict the gear used to catch finfish and that used to land shellfish.

Reservoir Fishery Research Strategy and Tactics, by Robert M. Jenkins, Circular 196, 15 pp., illus., July 1964.

THE FOLLOWING REPRINTS FROM FISHERY BULLETIN, VOL. 63, NO. 2, 1964, ARE AVAILABLE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON, D. C. 20240.

A Benthic Community in the Sheepscot River Estuary, Maine, by Robert W. Hanks, pp. 343-353, illus., printed.

Dentition of the Northern Fur Seal, by Victor B. Schaffer and Bertram S. Kraus, pp. 293-342, illus., printed.

An Experimental Evaluation of the C<sup>14</sup> Method for Measuring Phytoplankton Production, Using Cultures of DUNALIELLA PRIMOLECTA Butcher, by William H. Thomas, pp. 273-292, illus., printed.

A Morphometric Study of Yellowfin Tuna THUNNUS ALBACARES (Bonnaterre), by William F. Royce, pp. 395-443, illus., printed.

Origins of High Seas Sockeye Salmon, by Fred C. Cleaver, pp. 445-476, illus., printed.

Preconstruction Study of the Fisheries of the Estuarine Areas Traversed by the Mississippi River-Gulf Outlet Project, by George A. Rounsefell, pp. 373-393, illus., printed.

Relation between Spawning-Stock Size and Year-Class Size for the Pacific Sardine SARDINOPS CAERULEA (Girard), by John S. MacGregor, pp. 477-491, illus., printed.

Sexual Maturation and Spawning of Atlantic Menhaden, by Joseph R. Higham and William R. Nicholson, pp. 255-271, illus., printed.

Upwelling in the Costa Rica Dome, by Klaus Wyrski, pp. 355-372, illus., printed.

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

Number	Title
MNL-32	Venezuelan Commercial Catch, Foreign Trade, and Major Developments, 1963, 16 pp.
MNL-94	Malta's Fishing Industry, 1964, 12 pp.
	Checklist of Reports Issued by Fishery Market News Service, February 1965, 6 pp.

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE FROM THE TECHNOLOGICAL LABORATORY, U. S. BUREAU OF COMMERCIAL FISHERIES, GLOUCESTER, MASS. 01930.

A Rapid New Electronic Process for Determining the Freshness of Salt-Water Fish, by Chr. Hennings, 17 pp., processed. (Translated from the German, Zeitschrift fur Lebensmittel-Untersuchung und-Forschung, vol. 119, no. 6, 1963, pp. 461-477.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE FROM THE BIOLOGICAL LABORATORY, U. S. BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII, 96812.

On the Structure of Yellowfin Tuna Schools as Seen from the Distribution of the Catch on the Tuna Longline, by Nobuo Hirayama, 3 pp., processed. (Translated from the Japanese, Bulletin of the Japanese Society of Scientific Fisheries, vol. 23, no. 7, 1957, pp. 375-375.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ON LOAN ONLY FROM THE BIOLOGICAL LABORATORY, U. S. BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII, 96812.

A Population Study on the So-Called Makajiki (Striped Marlin) of Both Northern and Southern Hemispheres of the Pacific. II--Fishing Conditions in the Southern Hemisphere, by Misao Honma and Tadao Kamekura, 10 pp., processed. (Translated from the Japanese, Report of the Nankai Regional Fisheries Research Laboratory, no. 8, March 1958, pp. 12-21.)

THE FOLLOWING TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE AVAILABLE FROM THE TRANSLATION PROGRAM, U. S. BUREAU OF COMMERCIAL FISHERIES, 2725 MONTLAKE BLVD. E., SEATTLE, WASH. 98102.

"Data on salmon predation. 1--On predation on salmon by fur seals," article, Data on Salmon Predation, 8 pp., processed. (Translated from the Japanese, North Pacific Mothership Association, Japan, 1959)

"Morphological differences between summer and autumn chum salmon *Oncorhynchus keta* (Walbaum), O. keta



(Baum) infraspecies autumnalis Berg," by L. D. Co., article, Pacific Salmon: Selected Articles for Soviet Periodicals, pp. 13-17, processed. (Translated from the Russian, Doklady Akademii SSSR, vol. 92, no. 6, 1953, pp. 1225-1228.)

Present Status of Soviet Russian Far Eastern Fisheries and Japanese-Soviet Fishery Negotiations, by Naiko Hanamura, Translation Series No. 23, 4 pp., processed. (Translated from the Japanese, Suisan Gaku, vol. 6, nos. 3-4, 1957, pp. 25-28.)

THE FOLLOWING ENGLISH TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE AVAILABLE ON LOAN ONLY FROM THE TRANSLATION PROGRAM, U. S. BUREAU OF COMMERCIAL FISHERIES, 2725 MONTLAKE BLVD. E., SEATTLE, WASH. 98102.

The Present State of Active Marine Fisheries in Kamchatka, by V. S. Gorelik, 21 pp., processed. (Translated from the Russian, Vladivostok, Izvestiya Tsokeanskogo Nauchno-Issledovatel'skogo Instituta i Obnogo Khozyaistva i Okeanografii, vol. 44, 1957, pp. 223-243.)

Study on the Albacore. V--The Fishing Condition and Status of Albacore Taken in the South Pacific, by Misono and Tadao Kamimura, 7 pp., processed. (Translated from the Japanese, Report of Nankai Ronal Fisheries Research Laboratory, no. 6, Feb. 1957, pp. 84-90.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE FROM THE BUREAU OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, 101 SEASIDE AVE., TERMINAL ISLAND, CALIF. 90731.

III--Japanese Thinking Vis-a-Vis United States Yellowfin Tuna Regulations, Translation Series No. 12, 6 pp., processed, Feb. 1965. (Translated from the Japanese, Background of the U. S. Regulatory Act for Yellowfin Tuna, 1962, pp. 36-41.)

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

(Baltimore) Monthly Summary--Fishery Products, Dec. 1964, 10 pp. (Market News Service, U. S. Fish and Wildlife Service, 103 S. Gay St., Baltimore, Md. 21202.) Receipts of fresh- and salt-water fish and shellfish at Baltimore by species and by states and provinces; total receipts by species and comparison with previous periods; and wholesale prices of fresh fishery products on the Baltimore market; for the month indicated.

California Fishery Market News Monthly Summary, I - Fishery Products Production and Market, Dec. 1964, 18 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Diego, Calif. 90731.) California cannery receipts of tuna and tunalike fish and other species used for canned pack of canned tuna, tunalike fish, sardines, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen fish prices; ex-vessel prices for cannery fish; Oregon and Washington receipts (domestic and imports) of fresh and frozen tuna and tunalike fish; prices for fish meal, oil, and solubles; for the month indicated.

California Fishery Market News Monthly Summary, II - Fishing Information, Dec. 1964 and Jan. 1965, 8 and 13 pp. respectively, illus. (U. S. Bureau of Commercial Fisheries, Tuna Resources Laboratory, P. O. Box 271, La Jolla, Calif. 92038.) Con-

tains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the months indicated. The January issue contains an article, "Shark tagging in the eastern Pacific," by Susumu Kato.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, Nov. and Dec. 1964, 14 pp. each. (Market News Service, U. S. Fish and Wildlife Service, U. S. Customs House, 610 S. Canal St., Rm. 704, Chicago, Ill. 60607.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the months indicated.

Fishery and Oceanography Translations, no. 3, Dec. 1964, 36 pp., processed. (Translation Program, Branch of Reports, U. S. Bureau of Commercial Fisheries, 2725 Montlake Blvd., E., Seattle, Wash. 98102.)

Gulf of Mexico Monthly Landings, Production and Shipments of Fishery Products, Dec. 1964, 11 pp. (Market News Service, U. S. Fish and Wildlife Service, Rm. 609, 600 South St., New Orleans, La. 70130.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans; wholesale prices of fish and shellfish on the New Orleans French Market; fishery imports at Port Isabel and Brownsville, Texas, from Mexico; Gulf menhaden landings and production of meal, solubles, and oil; and sponge sales; for the month indicated.

Hydrographic Observations of Tampa Bay, Florida, and Adjacent Waters, August 1961 through December 1962, by Carl H. Saloman, John H. Finucane, and John A. Kelly, Jr. Data Report No. 4, 6 microfiche cards, Jan. 1965. (Branch of Reports, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington, D. C. 20240.)

To Keep Fish Fresh, Circular No. C-190, 12 pp., illus., printed, Aug. 1964. (Technological Laboratory, U. S. Bureau of Commercial Fisheries, Gloucester, Mass. 01930.) Outlines briefly, with the use of drawings and photos, the Laboratory's principal research work--preservation and engineering, protein investigations, information services, irradiation preservation, radiation pasteurization, flavor and odor studies, specifications development, and standards development. The title states the ultimate goal of the work--to keep fish fresh.

New England Fisheries--Monthly Summary, Dec. 1964, 22 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 02210.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, and Provincetown), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and Boston Fish Pier and Atlantic Avenue fishery landings and ex-vessel prices by species; for the month indicated.



New York City's Wholesale Fishery Trade--Monthly Summary--Oct. 1964, 20 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York, N. Y. 10038.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, including both the salt- and fresh-water sections; imports entered at New York customs district; primary wholesalers' selling prices for fresh, frozen, and selected canned fishery products; marketing trends; and landings at Fulton Fish Market docks and Stonington, Conn.; for the month indicated.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, Jan. 1965, 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 reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; shrimp landings; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

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

"A review of advances in the study of diseases of fish: 1954-64," by George Post, article, The Progressive Fish-Culturist, vol. 27, no. 1, Jan. 1965, pp. 3-12, processed, single copy 25 cents.

## MISCELLANEOUS PUBLICATIONS

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

### ABALONE:

"Studies on the nutrition of abalone. I--Feeding trials of abalone, Haliotis discus Reeve, with artificial diets," by Chinkichi Ogino and Eisuke Ohta, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, July 1963, pp. 691-694, printed. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

### ALGAE:

How to Control Algae (Water Bloom-Pond Scum), Fisheries Leaflet No. 3, 3 pp., printed, 1960. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

"Key to the genera of the larger green and brown algae around Sydney," by Margaret M. Mackay, article, Proceedings, Linnean Society of New South Wales, vol. 88, no. 3, 1964, pp. 361-363, printed. Linnean Society of New South Wales, Science House, 157 Gloucester St., Sydney, Australia.

### ANCHOVY:

"Anchoveta--¿aplacará el hambre?" (Anchovy--will it appease hunger?), article, Mundo Pesquero, vol. 2, no. 15, Nov. 1964, pp. 11-13, illus., printed in Spanish, single copy S/. 6.00 (about 25 U. S. cents), Mundo Pesquero, Av. Oscar R. Benavides 1207 (Colonial), Lima, Peru.

### ANESTHETICS:

"Anesthetic effect of 4-Styrylpyridine on lamprey and fish," by John H. Howell and Paul M. Thomas, article, Transactions of the American Fisheries Society, vol. 93, no. 2, 1964, pp. 206-208, printed. American Fisheries Society, 1404 New York Ave. NW., Washington, D. C. 20005.

### AQUATIC WEEDS:

How to Control Emergent, Marginal, and Floating Aquatic Weeds, Fisheries Leaflet No. 1, 3 pp., printed, 1960. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

The following abstracts of articles are from Weed Abstracts, vol. 12, 1963, printed. British Weed Control Council, 58 Mark Lane, London, England.

These are from no. 6:

"Aquatic weed control and research in the West," by F. L. Timmons, Abstract No. 1663.

"Control of Eurasian water milfoil (M. spicatum) in TVA reservoir," by G. E. Smith, Abstract No. 1669.

"Mass treatment with 2, 4-D of milfoil in tidal creeks in Virginia," by D. Haven, Abstract No. 1668.

"Progress report on distribution and control of Eurasian water milfoil in the Chesapeake Bay region, 1962," by J. H. Steenis and V. D. Stotts, Abstract No. 1667.

"Results of 3 years of testing Diquat as an aquatic herbicide in Florida," by R. D. Blackburn and L. W. Welton, Abstract No. 1675.

This from no. 5:

"Aquatic weed control," by E. C. Hughes, Abstract No. 1314.

### ARGENTINA:

"La peche en Republique Argentine" (The fishery in the Republic of Argentina), by E. Postel, article, La Pêche Maritime, vol. 44, no. 1042, Jan. 1965, pp. 16-19, illus., printed in French, single copy 14 F (about US\$2.85). La Pêche Maritime, 190, Blvd. Haussmann, Paris 8<sup>e</sup>, France.

### AUSTRALIA:

Manufacturing Industries, 1962-63, No. 23--Meat and Fish Preserving, by K. M. Archer, 9 pp., processed, Dec. 14, 1964. Commonwealth Bureau of Census and Statistics, Canberra, A. C. T., Australia.

### BALTIC SEA:

Changes in the Stocks of Commercial Fishes in the Baltic Sea under the Influence of Oceanographic Factors, by T. F. Dement'eva, OTS 64-21653, 10 pp., processed, 1964. (Translated from the Russian, Okeanologiya, vol. 3, no. 5, 1963, pp. 876-885.) Office



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Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### BIOCHEMISTRY:

Biosynthesis of Trimethylammonium Compounds in Aquatic Animals. IV--Precursors of Trimethylammonium Oxide and Betaine in Marine Teleosts, by E. Bisk, 7 pp., printed. (Reprinted from Journal of the Fisheries Research Board of Canada, vol. 21, no. 1964, pp. 765-771.) Technological Laboratory, Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

#### CALIFORNIA:

Fourth Biennial Report, July 1, 1962-June 30, 1964, 40 pp., illus., printed. Conservation Education Division, California Department of Fish and Game, 1409 St., Sacramento, Calif. Discusses activities of the Department of Fish and Game, 1962-1964, including, among others, work with inland fisheries, salmon and steelhead, marine resources, law enforcement, and pollution and pesticides. Also covers how the Department of Fish and Game works on river projects, delta study, fish and wildlife planning and conservation education.

Freshwater Nongame Fishes of California, by J. Bruce Key and Leonard O. Fisk, 54 pp., illus., printed, 1964. Department of Fish and Game, 722 Capitol Mall, Sacramento, Calif. 95814.

#### CANADA:

"The Fisheries of Quebec," article, Trade News, vol. 10, no. 5, Nov. 1964, pp. 6-8, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada. During the past 20 years, fishermen in Quebec have landed between 100-150 million pounds of fish a year. Depending on fluctuations in the landed price of fish, the value of the catches varied between C\$2 million to \$5 million. Catches of salt-water fish in 1962 reached 10 million pounds, while the fresh-water catches amounted to 2.5 million pounds. Cod accounts for more than 60 percent of the landings. Fishing gear consists of hand lines, cod traps, trawl lines with floats, and otter trawls.

Following all processed in French and English and available from Queen's Printer and Controller of Stationery, Ottawa, Canada:

Fisheries Statistics, Alberta and Northwest Territories, 1963, Catalogue No. 24-212, 12 pp., Dec. 1964, C\$0.50. Contains tables giving the value of fishery products by species in Alberta, 1956-63; quantity and value of fish landings, 1962-63; and quantity and value of fish products with landed and marketed value, 1962-63. Also presents tables showing value of fishery products by species Northwest Territories, 1956-63; quantity and value of landings, 1962-63; quantity and value of fishery products; capital equipment employed in primary operations; and number of persons engaged in the fisheries.

Fisheries Statistics of Canada, 1962 (Canada Summary), Catalogue No. 24-201, 59 pp., Dec. 1964, C\$0.75. This report provides a summary of the Canadian fisheries, arranged to show separately the three main fisheries--Atlantic, Pacific, and Inland. Contains statistical tables on quantity and value of land-

ings by species and provinces; value of exports and imports of fish and fishery products; number of vessels engaged in fishing; employment in the primary industry; Canadian lobster pack; British Columbia salmon pack; and fishing bounties paid to vessels. Also includes tables showing sea fish, including molluscs and crustaceans, landed in Nova Scotia, New Brunswick, and Prince Edward Island in 1962, classified by ICNAF division and fisheries districts.

Fisheries Statistics, Manitoba, 1963, Catalogue No. 24-210, 10 pp., Dec. 1964, C\$0.50. Contains tables giving the value of fish landed in Manitoba, 1956-1963; quantity and value of landings by species and fisheries districts, 1962-63; quantity and value of fishery products by species; capital equipment used in the primary fishery operations; and the number of persons engaged in the fisheries.

Fisheries Statistics, Prince Edward Island, 1963, Catalogue No. 24-203, 24 pp., illus., Jan. 1965, C\$0.50. Consists of statistical tables giving the quantity and value of landings, 1951-63; quantity and value of landings and processed products, 1962 and 1963; classification of fishing vessels by tonnage, type of gear used, length, and fisheries districts; new capital investment in the commercial fishery; number of fishermen by extent of employment; and persons engaged in the major fisheries.

Situation Économique de la Pêche Côtière du Québec (Economic Position of Quebec's Coastal Fishery), by Marcel Daneau, 182 pp., printed in French, 1964. Division of Fisheries, Ministry of Industry and Commerce, Quebec, Canada.

#### CANNING:

"Os corpos gordos na industria de conservas" (The oily substances in the canning industry), by G. Roskis, article, Conservas de Peixe, vol. 19, no. 224, Nov. 1964, pp. 15-19, 21, printed in Portuguese. Sociedade da Revista Conservas de Peixe, Lda., Regueirao dos Anjos, 68, Lisbon, Portugal.

#### CARP:

Carp Facts, by Leo Rock, Fish Mgt. Mimeo No. 17, 2 pp., processed, Aug. 1962. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

Selected Articles, by Jan Marian Wlodek, OTS 63-11403, 32 pp., printed, 1964, 50 cents. (Translated from the Polish, Acta Hydrobiologica, vol. 1, no. 1, 1959, pp. 5-16, 17-36.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230. Contains "Morphological characteristics of carp from Golysz pond farm," and "Studies on the body structure of Polish carp."

#### CHILE:

"Chile--atún y anchovetas" (Chile--tuna and anchovies), article, Pesca y Marina, vol. 16, no. 6, Dec. 1964-Jan. 1965, pp. 6-7, illus., printed in Spanish. Fernando Flores Limitada, 705 N. Windsor Blvd., Los Angeles 38, Calif.

#### COASTAL WETLANDS:

Broad Marsh, by Robert F. Hutton, 6 pp., illus., printed. (Reprinted from Massachusetts Audubon, Winter 1964, pp. 65-70.) Division of Marine Fisheries, Mas-



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sachusetts Department of Natural Resources, 15 Ashburton Pl., Boston 8, Mass. In a historic decision of March 9, 1964, a Massachusetts Judge ruled that "Broad Marsh is a 'salt marsh' necessary to preserve and protect marine fisheries." Whatever the outcome of appeal, the decision stands as the first legal recognition of a biological fact: that salt marshes are related to the prosperity of marine fisheries. Some states have been trying to protect their wetlands and estuaries from destruction through educational and planning programs both at the state and local levels. Other states have introduced legislation directed toward that protection. In Massachusetts on May 22, 1963, Chapter 426 was passed by the Legislature of the Commonwealth and took effect immediately. This Act requires proper notification to local and state licensing agencies by petitioners seeking license to alter shoreline areas; the holding of a local hearing on each such proposed project; the evaluation of possible detriment to marine fishery resources and the imposing of appropriate conditions upon such projects by the Director of Marine Fisheries to protect adequately the fishery resources.

#### COBIA:

Spawning of the Cobia, RACHYCENTRON CANADUM, in the Chesapeake Bay Area, with Observations of Juvenile Specimens, by Edwin B. Joseph, John J. Norcross, and William H. Massmann, Contribution No. 157, 5 pp., illus., printed. (Reprinted from *Chesapeake Science*, vol. 5, no. 1-2, March-June 1964, pp. 67-71.) Virginia Institute of Marine Science, Gloucester Point, Va.

#### COD:

Research Concerning Cod in the Southern Part of Bornholm Basin in 1951-1952 (Badania nad Dorszem Południowej Części Bałenu Bornholmskiego w Latach 1951-1952), by Czesław Zukowski, OTS 61-11366, 35 pp., illus., processed, 1964, 50 cents. (Translated from the Polish, *Prace Morskiego Instytutu Rybackiego w Gdyni*, vol. 9, 1957, pp. 45-78.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

"Variation in abundance of polar cod of the Pomor coast of the White Sea," by A. M. Anukhina, article, *Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii*, vol. 1, 1963, pp. 112-119, printed in Russian. *Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii*, Akademiia Nauk SSSR, Moscow, U.S.S.R.

#### COMMISSIONS:

(Atlantic States Marine Fisheries Commission) Minutes of the 23rd Annual Meeting (September 22-24, 1964, Atlantic City, N. J.), 189 pp., illus., processed, limited distribution. Atlantic States Marine Fisheries Commission, 336 E. College Ave., Tallahassee, Fla. 32301. Covers minutes of the 23rd annual meeting of the Commission with details of attendance; the first, second, third, and fourth general sessions; and section meetings of the North Atlantic, Middle Atlantic, Chesapeake Bay, and South Atlantic Sections. Also includes accounts of the individual section meetings, resolutions recommended for adoption, and the executive committee and biological

committee meetings. Appendices contain, among others, reports on water pollution and commercial fisheries, Commercial Fisheries Research and Development Act of 1964, current problems and trends in the sanitary production of shellfish, fishery legislation of the 88th Congress, extent and effects of foreign fishing off the Atlantic Coast, menhaden investigations, and estuaries--the forgotten natural resource. Also contained in the appendices are reports on coastal alterations, technological research needs, hard clam size limits in various states and possibilities of a uniform size limit, and summer flounder research and recommendations for additional study.

#### COMPOSITION:

"Determination of sodium and potassium in fish and other marine products," by Mary H. Thompson, article, *Journal of the Association of Official Agricultural Chemists*, vol. 47, August 1964, pp. 701-707, printed. Association of Official Agricultural Chemists, P. O. Box 540, Benjamin Franklin Station, Washington, D. C. 20004.

#### CONSERVATION:

Federal Aid in Fish and Wildlife Restoration (Annual Report on Dingell-Johnson and Pittman-Robertson Programs for the Fiscal Year Ending June 30, 1963), 82 pp., processed, 1964. Sport Fishing Institute, Bond Bldg., Washington, D. C. 20005. Presents a short program review of expenditures and projects operated during FY 1963, and statistical tables giving data on individual projects, land purchases, hunting and fishing licenses issued by the states, and other pertinent information.

#### CRABS:

Meat Content of King Crabs (PARALITHODES CAMTSCHATICA, Tilesius) from Kodiak Island, Alaska, by Guy C. Powell and Richard B. Nickerson, Informational Leaflet 46, 12 pp., processed, Jan. 10, 1964. Department of Fish and Game, Subport Bldg., Juneau, Alaska. To study periodic variation in meat content 5 to 10 king crabs of similar length were selected each month from Oct. 16, 1961, to June 27, 1962, omitting only March and May. The total cooked meat of the three pairs of walking legs was extracted. The merus meat of the right middle walking leg was found to be a satisfactory index of total leg meat weight because of the high meat content and relative uniformity throughout the molt cycle. In another study, conducted during March 1960, the total cooked meat of the chelae, walking legs, body, and abdomen was removed from six juvenile king crabs and 16 adults of varying shell ages. The percentage of meat yield from juvenile crabs was less than that for adults. Newly molted crabs yielded a lower percentage of meat than crabs with 11-month old shells. The authors concluded that total commercial yield can be increased by harvesting crabs during seasons when meat content is high. They recommended that methods for determining meat yield be standardized.

#### CRUSTACEA:

Deoxyribonucleic Acids of Crustacea, by Michael Srnec, 7 pp., illus., printed. (Reprinted from *Journal of Molecular Biology*, vol. 9, 1964, pp. 17-23.) Technological Research Laboratory, Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.



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

#### DICTIONARIES:

Observation Directory, 1964-65--A Listing of Organizations, Agencies and Officials Concerned with Marine Resource Use and Management, 110 pp., processed, Sept. 1, 1964, \$1. National Wildlife Federation, 1412 16th St. NW., Washington, D. C. 20036. Includes names and addresses, together with other pertinent information, of United States Government agencies; independent U. S. Government agencies; international, national, and interstate commissions; international organizations; national organizations; national organizations; colleges and universities; agencies and organizations in states and territories; Canadian Government agencies; Canadian national citizens' groups; and Canadian provincial and territorial agencies and citizens' groups.

Fishing Guide, 1964 Edition, 189 pp., illus., printed in German, Spanish, and English, £3 (about US\$8.40). Hampian Press Ltd., The Tower, 229-243 Shepherdess Row Rd., Hammersmith, London W6, England. The guide is compiled to fulfill the need for a comprehensive directory of companies manufacturing gear, equipment, and supplies for the fishing industry. The manufacturers' directory is compiled under product headings. Under each heading, the name and address of companies manufacturing these items are given in full, by country. Companies in 21 countries are listed. A products index in the front of the book is provided, with reference numbers to the sections concerned. The fishing vessel builders' directory is devoted to listing shipyards in 17 countries engaged in vessel construction. Slipway and berth capacities together with the types of vessels built are specified and, where possible, names of designers are also given. A new section lists fishing vessels completed in Europe and Canada in 1963, with details of propulsion machinery, fish detection and navigational equipment, and other features.

#### BOOKS:

Freshwater Drum, by Arnold Fritz, Fish Mgt. Mimeograph No. 26, 2 pp., processed, Nov. 1963. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

Pelagic Eggs and Early Larval Stages of the Black Drum from Chesapeake Bay, by Edwin B. Joseph, William H. Massmann, and John J. Norcross, Contribution No. 156, 10 pp., illus., printed. (Reprinted from Copeia, no. 2, June 30, 1964, pp. 425-434.) Virginia Institute of Marine Science, Gloucester Point, Va.

#### GERMANY:

Fischerei-Forschung, vol. 2, no. 1, 1964, 138 pp., illus., printed in German. Institut für Hochseefischerei und Fischverarbeitung, Rostock-Marienehe, Democratic Republic of Germany. Includes, among others, articles on: "Erster bericht über kabeljauwarkierungen 1961/62 bei Westgrönland" (The first report on 1961/62 cod tagging period in the area of eastern Greenland), by E. Biester; "Der einsatz von schotographen in der fischereiforschung der kusten-fischerei" (The use of echographs in coastal fishery research), by K. Falk and W. Bobzin; "Ergebnisse von stromungstechnischen untersuchungen an netzschern im windkanal" (The results of technical investigations on the trawl mesh resistance to current in a wind tunnel), by H. Stengel and H. J. Fischer; "Ergebnisse von stromungstechnischen untersuchun-

genanschleppnetzmodellen im windkanal" (The results of technical investigations on resistance of trawl models in a wind tunnel), by H. Stengel and H. J. Fischer; "Ein messgerat zur bestimmung der netzöffnungshöhe--eine entwicklung vom institut für hochseefischerei und fischverarbeitung" (An apparatus for the determination of the height of net opening--a new development worked out by the Institut für Hochseefischerei und Fischverarbeitung), by H. Seiler; "Neue wege bei der gestaltung von booten für die kusten-fischerei" (New ways of building boats engaged in coastal fisheries), by H. Glanz; "Untersuchungen über den einfluss der standzeiten von 'fischkonserven' vor der sterilisation auf die qualitat des endproduktes" (Research on the effects of pre-sterilization storage time on the quality of the end product), by G. Tschek; and "Untersuchungen über gefrierverfahren und schutzmassnahmen zur verlängerung der lagerfähigkeit von tiefgefrorenen sprotten und heringen" (Research on the procedures used in freezing and the measures adopted to prolong storage life of deep-frozen sprats and herring), by W. Gutschow.

#### ECHO-SOUNDER:

Echo Sounding Through Ice, by T. Hashimoto and others, Paper Presented at Second World Fishing Gear Congress, London, May 25-31, 1963, 6 pp., printed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla.

#### EXPLOSIVES:

The Effect of Blasting on the Fish Population in Stagnant and Running Water, by J. Gennerich, Translation No. 610, 18 pp., printed. (Translated from the German, Zeitschrift für Fischerei, vol. 30, 1932, pp. 261-278.) Marine Laboratory, Department of Agriculture and Fisheries for Scotland, P. O. Box 101, Victoria Rd., Torry, Aberdeen, Scotland.

#### FILMS:

Films about the Canning Industry, 55 pp., illus., printed, fifth edition Dec. 1964. Information Division, National Canners Association, 1133 20th St. NW., Washington, D. C. 20036. Lists alphabetically by titles, with short descriptions and addresses of sources, films about the food and related industries. Includes, among films on many other foods, these on fishery products: "Fish Cookery with Savoir"; "It's the Maine Sardine"; "Salmon--Catch to Can"; "Shrimp Tips from New Orleans"; "Fresh Out of the Water"; "Chicken of the Sea" Tuna--from Catch to Can"; "Maine Sardines--the Food and the Industry"; "Sardines from Maine--Down-East Style"; "Shrimp Please"; and "Take a Can of Salmon."

#### FINLAND:

Foreign Trade Regulations of Finland, by Harold McNitt, OBR 64-132, 8 pp., printed, Dec. 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.) Finland's commercial policy aims at a steady increase in the level of its international trade. In addition to trade policy, the report discusses the import tariff system, sales and other internal taxes, documentation and fees, and labeling and marking requirements. Also covers special customs provisions, nontariff import controls,



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Finland's export controls, United States foreign trade controls, and Government representation between the two countries.

#### FISH BARRIERS:

"Erfahrungen mit elektro-fischabweisern" (Experiments with electrical fish barriers), by H. W. Hatop, article, *Deutsche Fischerei-Zeitung*, vol. 11, no. 11, Nov. 1964, pp. 321-328, illus., printed in German. Neumann Verlag, Dr. Schmincke Alle 19, Radebeul 1, Berlin, Germany.

#### FISH BEHAVIOR:

"Dynamics of conditioned imitating reflexes in certain sea fishes (cod, coalfish, haddock)," by V. V. Gerasimov, article, *Translation of Doklady Biological Sciences Sections*, vol. 146, nos. 1-6, 1962, pp. 1106-1109, printed. (Translated from the Russian, *Doklady Akademii Nauk SSSR*, vol. 146, no. 6, 1962, pp. 1456-1459.) Consultant's Bureau Enterprises, Inc., 227 W. 17th St., New York, N. Y. 10011.

"Izuchenie povedeniya ryb v zone deistviya orudii lova" (Fish behavior in the zone of action of fishing gear), by N. E. Aslanova, article, *Trudy Vsesoiuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khoziaistva i Okeanografii*, vol. 36, 1958, pp. 33-51, printed in Russian. *Trudy Vsesoiuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khoziaistva i Okeanografii*, Verkh. Krasnosel'skaia Ul. No. 17, Moscow, U.S.S.R.

#### FISH COOKERY:

*The Cookbook of the United Nations*, compiled by Barbara Kraus, 146 pp., illus., printed, Oct. 24, 1964. United Nations Association of the United States of America, Inc., New York, N. Y. 10011. Contains 250 authentic recipes, professionally tested by home economists, from 112 countries. In addition to recipes for family meal dishes, there are large-scale buffet menus and recipes for receptions and other group meals. Fish dishes include baked fillets of whiting from Australia, baked fish a la Moscow from the U.S.S.R., Nigerian seafood and black-eyed peas, Belgian fillets of sole Ostendaise, fish souffle from Iceland, fish stew with vegetables from Upper Volta, Malaysian shrimp with green pepper, New Zealand oyster stew, and many others.

#### FISHERY MANAGEMENT:

*Fish Management Demonstrations*, by Al Lopinot, Fish Mgt. Mimeo No. 15, 3 pp., processed, Aug. 1964. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

#### FISH FEEDING:

*Availability of Food Animals to Some Fishes at Different Conditions of Illumination*, by I. I. Girs, Translation No. 717, 5 pp., printed. (Translated from the Russian, *Akademiya Nauk SSSR, Trudy Soveshchaniia Ikhtiologicheskoi Komissii*, no. 13, 1961, pp. 355-359.) Marine Laboratory, Department of Agriculture and Fisheries for Scotland, P. O. Box 101, Victoria Rd., Torry, Aberdeen, Scotland.

#### FISH FINDER:

*Comparison between Survey Map by 14.5 kc. fish-finder and that by 200 kc. fish-finder with sharp beam*

on same sea, by Tomiju Hashimoto and Yoshinobu Maniwa, OTS 60-13257, 7 pp., processed, \$1.10. (Translated from the Japanese, *Technical Report of Fishing Boat*, no. 12, 1958, pp. 149-155.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

"Gidroakusticheskii metod opredeleniya kolichestva ryb v razrezhenom skoplenni" (Hydroacoustic method of determining the quantity of fish at low population density), by O. N. Kiselev, M. D. Truskanov, and M. N. Shcherbino, article, *Referativnii Zhurnal-Biologiya*, vol. 13, 1962, Abstract No. 13119, printed in Russian. *Akademiya Nauk SSSR, Institut Nauchnoi-Informatsii*, Moscow, U.S.S.R.

#### FISHING WITH LIGHTS:

"Daylight lamps for fishing saury," by A. Kovalev, article, *Rybnaya Promyshlennost Dal'nego Vostoka*, no. 1, 1963, p. 27, printed in Russian. *Rybnaya Promyshlennost Dal'nego Vostoka*, Vladivostok, U.S.S.R.

#### FISH-LIVER OIL:

The following articles from *Chemical Abstracts*, vol. 59, printed; American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.:

"Purification of fish liver oil," by Hiroshi Sone, Oct. 14, 1963, Abstract No. 8550b.

"The vitamin A potency of fish liver oil and its effect on the growth of albino rat. I--Growth tests on various diets," by H. Baba, Sept. 30, 1963, Abstract No. 7915c.

#### FISH MEAL:

"Nociones basicas acerca de la elaboracion de la harina de pescado" (Basic ideas about the manufacture of fish meal), by Trygve Sparre, article, *Industria Conservera*, vol. 30, no. 304, Oct. 1964, pp. 270-272, printed in Spanish. Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

#### FISH PUMP:

"Experimental use of fish pumps in various phases of fisheries," by Shin'ichi Yajima and others, article, *Bulletin of the Japanese Society of Scientific Fisheries*, vol. 29, September 1963, pp. 834-840, printed in Japanese. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan.

#### FISH SAUSAGE:

"Fish sausage and ham industry in Japan," by Eiichi Tanikawa, article, *Advances in Food Research*, vol. 12, 1963, pp. 367-424, illus., printed. Academic Press, 111 Fifth Ave., New York, N. Y. 10003.

#### FISH SCALES:

"A technique for preparing scale smears," by G. Powell, article, *Transactions of the American Fisheries Society*, vol. 93, no. 2, 1964, pp. 201-202, printed. American Fisheries Society, 1404 New York Ave. NW., Washington, D. C. 20005.

#### FISH SOUNDS:

*Noise of Creatures in Sea in Region of Ultrasound*, by Tomiju Hashimoto and Yoshinobu Maniwa, OTS 60-19855, 16 pp., processed, \$1.60. (Translated from the



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Japanese, Technical Report of Fishing Boat, no. 12, pp. 99-114.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### FISH SPOTTING:

Acoustic sounding for Fish from a Helicopter, by A. P. Menchenko, 59-19172, 2 pp., microfilm, \$1.80. (Translated from the Russian, Priroda, vol. 47, no. 1, 1958, pp. 79-80.) Photoduplication Service, Library of Congress, Washington, D. C. 20540.

detección de peces con helicópteros" (Fish spotting with helicopters), by M. Yves Bourdreault, article, Pesca y Marina, vol. 16, no. 6, Dec. 1964-Jan. 1965, pp. 8-10, printed in Spanish. Fernando Flores Benitá, 705 N. Windsor Blvd., Los Angeles 38, Calif.

Localización de bancos de pesca con avion y sonar" (The location of fish schools with airplane and sonar), by Ragnar Hallre, article, Iberica, vol. 42, no. 29, Nov. 1964, p. 371, illus., printed in Spanish, single copy 18 ptas. (about 30 U. S. cents). Iberica, Edau, 3, Apartado 759, Barcelona-2, Spain.

#### FISH STOCKS:

Effect of Benthonic Fauna and Zooplankton on Fish Supplies, USSR, TT 64-41086, 22 pp., illus., processed, Aug. 10, 1964, \$1. (Translated from the Russian, Zoologicheskii Zhurnal, vol. 53, no. 6, 1964.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Oceanological conditions determining the size of the year classes of the most important commercial fishes in the northwestern North Atlantic," by A. A. Mizarov, article, Okeanologiya, vol. 3, no. 6, 1963, pp. 1065-1078, printed in Russian. Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.

#### FLORIDA:

Preliminary Exploratory Fishing on the Florida West Coast, by James E. Tyler, Special Scientific Report No. 8, 18 pp., illus., processed, Nov. 1, 1964. Marine Laboratory, Florida State Board of Conservation, Maritime Base, Bayboro Harbor, St. Petersburg, Fla.

#### FLOUNDER:

Structure of Catches of Flounder (PLEURONECTES FLESUS L.) in the Region of Gdansk in 1945-1952 (Struktura Polowow Storni--Pleuronectes flesus L.--w Rejonu Gdanskiego w Latach 1945-1952), by Zbigniew Reimann, OTS 61-11364, 54 pp., illus., processed, 1964. (Translated from the Polish, Prace Pomorskiego Instytutu Rybackiego w Gdyni, no. 9, 1957, pp. 103-150.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### FOOD AND AGRICULTURE ORGANIZATION:

From Food and Agriculture Organization, Viale delle Terme di Caracalla, Rome, Italy:

Commodity Review, 1964, 287 pp., printed, 1964. This is one in a series of annual commodity reviews and is divided into three parts. Part I contains a summary of developments in international commodity markets during 1963 and early 1964 and of inter-

national agreements and commodity consultations. Part II is a brief account of the United Nations Conference on Trade and Development, Geneva, March-June 1964. Part III analyses the current situation and outlook for all major agricultural, fishery, and forest products. In 1963, although no spectacular increases were recorded in catches of the leading fishery nations, world fish production probably set a new record of nearly 50 million tons.

Provisional Report of the Forty-Third Session of the Council, 91 pp., processed, Oct. 28, 1964. Presents an account of proceedings and discussions of the 43rd session of the Council of the Food and Agriculture Organization (FAO) held at Rome, Oct. 5-16, 1964. Topics covered include the world food and agriculture situation, activities of the FAO, world food program, constitutional and legal questions, administrative and financial questions, appointments, and other matters such as applications for membership. Included among many other detailed reports were those on activities of the FAO Fisheries Division, the role of FAO in world fishery development, and a plan for rational development of tuna resources in the Atlantic Ocean. "Many delegates considered that the status of the (Fisheries) Division within the Organization should be elevated and some suggested that this might take the form of giving it the status of a department," states one section.

Available from Columbia University Press, International Documents Service, 2960 Broadway, New York, N. Y. 10027:

General Fisheries Council for the Mediterranean, Proceedings and Technical Papers, No. 7, 508 pp., illus., printed, 1964, \$10. Part I contains a list of the participants and a summary record of the plenary sessions of the seventh session of the GFCM, Madrid, March 12-18, 1963. Included is a report of the work programs and recommendations and resolutions of the marine resources, production, utilization, inland waters, and economics and statistics committees. Part II consists of the texts of the technical papers presented in addition to lists of the papers in numerical order and in alphabetical order of authors.

Report of the Twelfth Session of the Conference, 16 November-5 December 1963, 209 pp., printed, 1964, \$3. Included are specific sections dealing with the fishery activities of the organization.

The State of Food and Agriculture, 1964, CL 43/4, 248 pp., illus., printed, 1964, \$6. Included is a section on fishery production.

#### FOREIGN TRADE:

"10th general revision of export regulations," Federal Register, vol. 30, no. 25, Feb. 6, 1965, part II, section 1, pp. 1402-1509; section 2, pp. 1512-1716, printed. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. 20230. Primary purpose of the 10th revision of Subchapter B--Export Regulations, Title 15--Commerce and Foreign Trade, is to consolidate into a new Commodity Control List the export controls which are applicable to all commodities to all destinations. Section 1 covers mutual assistance on U. S. imports and exports (as applied to selected U. S. imports); scope of export control by Department of Commerce; general



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licenses; provisions for individual and other validated licenses; licensing policies and related special provisions; project license; blanket license (BLT); periodic requirements license (PRL); and time limit license (TL). It also contains information on export clearance and destination control; amendments, extensions, transfers; enforcement provisions; denial of export privileges; administrative reviews and appeals; general orders; exportation of technical data; and priority ratings. Section 2 covers the commodity control list, commodity interpretations, and licensing division jurisdiction over processing codes. Fish and fish preparations are among the commodities covered in this section.

"Worldwide import rules," article, International Commerce, vol. 71, no. 4, Jan. 25, 1965, pp. 6-10, printed, single copy 35 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.) License and exchange-permit requirements as of Jan. 1, 1965, of about 119 countries are summarized for United States exporters in this article. Many countries which require import licenses for commercial shipments permit unlicensed imports of commercial samples and advertising matter of no monetary value. However, a number of countries require no import license or exchange permit at all for importation of commodities.

#### FRANCE:

Foreign Trade Regulations of France, by William Nagel, OBR 64-136, 11 pp., printed, Dec. 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.) France's trade policy in recent years has been directed toward expansion of exports, liberalization of imports, and simplification of foreign exchange controls. The report explains France's import tariff system, sales and other internal taxes, shipping documents, labeling and marking requirements, and special customs provisions. Also covers non-tariff import controls, France's export controls, United States foreign trade controls, and Government representation between the two countries.

"La produccion pesquera francesa ascendió a 507,000 toneladas en 1963" (French fishery production rose to 507,000 metric tons in 1963), article, Boletin de Informacion, no. 72, September 1964, pp. 19-21, printed in Spanish. Sindicato Nacional de la Pesca, Paseo del Prado, 18-20, 6ª Planta, Madrid, Spain.

The following articles are from La Peche Maritime, printed in French; La Peche Maritime, 190, Blvd. Haussmann, Paris 8<sup>e</sup>, France:

Vol. 43, no. 1041, Dec. 1964 (single copy 22.5 F or about US\$4.55):

"La peche Francaise a l'heure communautaire" (The French fishery in the Common Market), by Huguette Rozes, pp. 871-875, illus. Discusses the current position of the French fisheries under the European Common Market, imports and exports of fishery products, elimination of duties and quantitative im-

port restrictions among the member countries, and economic and political impact on the fisheries.

"Quelques raisons d'esperer" (Some reasons to hope) by E. Derouin, pp. 876-878, illus. Discusses a number of reasons for expecting improvement in the French fisheries during 1965.

Vol. 44, no. 1042 (single copy 14 F or about US\$2.85):

"Coup d'oeil sur l'évolution de la pêche en 1964" (A look at fishery developments in 1964), by L. Plouart, pp. 7, 8.

#### FREEZE-DRYING:

The following reports are available free from the Division of Information, OMS, U. S. Department of Agriculture, Washington, D. C. 20250.:

The Awakening Freeze-Drying Industry, by Kermit Bird, 13 pp., illus., processed, Jan. 1965. Discusses the present status of the industry; future aspects of freeze-drying, based on products being developed or market-tested such as coffee, tea, fruits, shrimp and crab, and ice cream; comparison of freeze-drying's growth with several new frozen products; whether freeze-drying will hurt the freezing industry; and a summary of growth prospects. Included are statistical tables showing United States and Canadian firm freeze-drying food for commercial market, January 1965; growth of commercial frozen foods, 1939-62; a graph showing anticipated growth of the freeze-drying industry, 1962-70; and other data.

Freeze-Drying Attitudes (Contains the 1964 Directory of Freeze-Drying), by Kermit Bird, 20 pp., processed, Nov. 1964. Covers the background of freeze-drying of foods during World War II and in Europe; markets for freeze-dried foods such as the armed forces, institutions, and the export trade; how misinformed attitudes toward these products limit their growth; and the need for exchange of information on this process. Included is a directory of freeze-dried food processors, handlers, equipment manufacturers, equipment firms, consultants, and others in North America, Europe, and the rest of the world.

#### FREEZERSHIP:

Modern Freezing and Refrigerating Installations for Fishing Vessels, by E. Hofman, GB/17/1540, 1 p., printed. (Translated from the German, Hansa, vol. 99, no. 18, 1962, p. 1869.) Association of Special Libraries and Information Bureau, 3 Belgrave Sq. London SW1, England.

#### FREEZING:

Freezing Meats, Poultry, Eggs, Dairy Products and Fish, by Jewel Graham, HE 60, 12 pp., illus., printed, May 1964. Cooperative Extension Service, Iowa State University, Ames, Iowa. Presents information on advantages of freezing; how to use a freezer most efficiently; how much, what kind, when to buy, and how long to store foods; and how to select and freeze meat, lard, poultry, and dairy products. A section on freezing fish covers cutting, handling of lean and fatty fish, wrapping, glazing, handling of shellfish, and cooking frozen fish. Emphasis is placed on the importance of freezing and maintaining the storage temperature of foods at 0° F.



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#### FRESH-WATER FISH:

The Affinities and Derivation of the New Zealand Fresh-Water Fish Fauna, by R. M. McDowall, 9 pp., illus., printed. (Reprinted from Tuatara, vol. 12, no. 2, July 1964, pp. 59-67.) Fisheries Laboratory, Marine Department, Wellington, New Zealand.

Familiar Fresh-Water Fish (Picture-Story Study Print Set), by R. E. Eshmeyer, set SP 116, 8 color prints, 1964, sold only in sets at \$8 a set (\$7 a set when 6 or more sets are ordered at one time). Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Ill. 60614. This set contains eight 18 x 18 inch full-color photo prints of 11 fresh-water fish--yellow perch, northern pike, brown bullhead, largemouth bass, brook trout, carp, common minnow, bluegill, rock bass, pumpkinseed, and blackchin shiner (the last four on one print). On the back of each print is information on the species pictured, together with a diagram showing parts of a fish, general facts about fish, and lists of filmstrips and other study print sets available from the publisher. Each set consists of eight photos, printed on heavy stock and coated with a protective finish; complete lesson material appears on the reverse of each print. They are especially suitable for display, as the punched holes at the corners permit thumbtack fastening without damage to the print. A durable "picture window" display-storage portfolio is provided with each set at no additional charge.

#### FROZEN FISH:

Frozen fish, Britain, by H. G. Garland, article, Foreign Trade, vol. 123, no. 3, Feb. 6, 1965, pp. 27-28, printed, single copy 25 Canadian cents. Queen's Printer, Government Printing Bureau, Ottawa, Canada. Nearly three-fourths of the fish consumed in Great Britain is sold fresh, but retail packs of frozen fish are now taking an increasing share of the market. Sales of frozen fish products accounted for about one-third of the £75 million (about US\$210 million) spent on frozen foods during 1964 and have increased faster than the sales of other products in the industry. Imports from many countries help to make up the wide variety of packs that stock frozen-food cabinets. Fish sticks are by far the largest selling item but there is a greater choice of brands and sizes of cod, haddock, and plaice fillets. Several brands of kippers, still the breakfast standby in many British households, are sold buttered and fried, and some are available in the "boil-in-the-bag" pack. Competition is keen and is likely to be intensified by a recent merger of three leading companies in the frozen-food industry, one of which is particularly strong in fish products.

Protein denaturation in frozen fish. VIII--The temperature of maximum denaturation in cod, by R. M. Evers and M. K. Elerian, article, Journal of the Science of Food and Agriculture, vol. 15, no. 11, Nov. 1964, pp. 805-809, illus., printed, single copy 17s. 6d. (about US\$5.30). Society of Chemical Industry, 14 Belgrave Sq., London SW1, England.

Thawing of Blocks of Small Fish, by S. I. Gakichov and V. D. Borodin, OTS 62-13735, printed, \$2.60. Translated from the Russian, Gostorgizdat, Moscow, U.S.S.R., 1959.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### GERMAN FEDERAL REPUBLIC:

Informationen für die Fischwirtschaft, vol. 11, no. 5, 1964, 49 pp., illus., processed in German. Bundesforschungsanstalt für Fischerei, Palmallee 9, Hamburg-Altona 1, Federal Republic of Germany. Includes, among others, these articles: "Tagung der Int. Group for Pelagic Fishing Methods (IF) in Hamburg am 19 u. 20 Okt. 1964" (Meeting of the Group for Pelagic Fishing Methods in Hamburg, 19-20 Oct. 1964); "Forschungsreise des FFS Anton Dohrn in die Norwegischen Gewässer, zur Bareninsel und zur Skolpenbank vom 12.10-9.11.1964" (Research cruise of the RV Anton Dohrn in Norwegian waters between Oct. 12-Nov. 9, 1964), by H. H. Reinsch; "Forschungsreise mit FFS Walther Herwig, 21.9 bis 14.10.1964, SW-Nordsee, Skagerrak, Ostkante" (Research cruise with RV Walther Herwig, Sept. 21 through Oct. 14, 1964, southwest North Sea, Skagerrak, Ostkante), by J. Scharfe and H. Mohr; "Versuche über 'seelachs in öl' -konservierung" (Experiments on sea salmon in oil preservation), by F. Gehring; "Qualitätsvorschriften für tiefgefrorene Produkte in Frankreich" (Quality norms for deep-frozen products in France), by H. Brockstedt; and "D.L.G. - Leistungsprüfung für tiefgefrorene fische und fischerzeugnisse" (Tests for deep-frozen fish and fishery products), by N. Antonacopoulos.

Jahresbericht über die Deutsche Fischwirtschaft, 1963/64 (Annual Report on the German Fisheries, 1963/64), issued by the Federal Ministry of Food, Agriculture and Forestry in cooperation with the Federal Statistical Office, 296 pp., illus., printed in German with English table of contents and chapter summaries, Oct. 1964. (Available from Verlag Gebr. Mann, Hauptstrasse 26, Berlin 62, Germany.) A review covering all phases of the German fisheries in 1963/64. Part I contains information on fishery policy, legislation, the sea and coastal fisheries as well as the fish supply, the German fishing fleet, biological-statistical report on the German deep-sea fishery, and foreign trade in fishery products. Part II includes information on cruises of the fishery protection and fishery research vessels, the fishing industry and the Social Security Board for Seamen, work of the German Scientific Commission for the Exploration of the Sea, and fishery research. Part III presents data on the cutter deep sea and coastal fisheries, fresh-water fisheries, the fish meal and oil industry, and the market for salt-water fishery products in the Federal Republic of Germany. Part IV gives data on foreign fisheries.

#### GREAT LAKES:

"Collection and analysis of commercial fishery statistics in the Great Lakes," by Ralph Hile, article, Great Lakes Fishery Commission Technical Report, No. 5, 1962, pp. 1-31, printed. Great Lakes Fishery Commission, Natural Resources Bldg., University of Michigan, Ann Arbor, Mich.

#### HADDOCK:

Yearly Fluctuations in the Food of Haddock off the Murman Coast (k Voprosu o Ezhegodnykh Kolebaniyakh Pitaniya Pikshi Murmanskogo Poberezh'ya), by R. Ya. Tseeb, OTS 63-11124, 17 pp., illus., processed, 1964, 50 cents. (Translated from the Russian, Trudy Murmanskogo Morskogo Biologicheskogo Instituta Akademii Nauk SSSR, no. 2 (6), 1960, pp. 186-202.) Office



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

of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### HERRING:

Clupeidae (Sel'devye), by Anatolii N. Svetovidov, 432 pp., illus., printed, 1963. (Translated from the Russian.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

"Fishery for the Pribilof winter herring," article, Rybnaya Promyshlennost Dal'nego Vostoka, no. 1, 1963, pp. 14-15, printed in Russian. Rybnaya Promyshlennost Dal'nego Vostoka, Vladivostok, U.S.S.R.

Growth of the Otoliths of Young Herring, by G. Hempel, Translation 613, 18 pp., printed. (Translated from the German, Helgolander Wissenschaftliche Meeresuntersuchungen, vol. 6, pt. 3, 1959, pp. 241-258.) Marine Laboratory, Department of Agriculture and Fisheries for Scotland, P. O. Box 101, Victoria Rd., Torry, Aberdeen, Scotland.

"Review and emendation of: Family Clupeidae," by Samuel F. Hildebrand, article, Fishes of the Western North Atlantic, Memoir I, Part 3, pp. 257-454, illus., printed, Mar. 1, 1964, \$27.50. Sears Foundation for Marine Research, New Haven, Conn.

"Storsildundersøkelsene i Nord-Norge 1964" (Investigation of the large herring in Northern Norway in 1964), by Finn Devold, article, Fiskets Gang, vol. 50, no. 51, Dec. 17, 1964, pp. 754-757, illus., printed in Norwegian with English summary. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

The following articles are from Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii, vol. 1, 1963. Akademiia Nauk SSSR, Moscow, U.S.S.R.

"Annual variations in the conditions and effectiveness of spawning and their influence on the size of the year classes of the White Sea herring," by K. A. Altukhov, pp. 57-68.

"Distribution of the herring of the White Sea," by Yu. E. Lapin and others, pp. 75-80.

"Morphological-ecological peculiarities in the development of the White Sea herring (Clupea harengus Pallas natio maris-albi Berg)," by S. G. Soin, pp. 68-74.

"Seasonal variations in the food of the White Sea herring," by R. Ya. Margulis, pp. 104-107.

"Similarities and differences in the biological tribes of herring in Onega Bay of the White Sea," by V. M. Erastova, pp. 81-86.

"Similarities in the variations of abundance of the spring-spawning herrings of Northwestern Europe, the Baltic, Atlanto-Scandian, and White Sea herrings," by I. I. Nikolaev, pp. 87-97.

"State of the natural resources and the prospects for 1962 herring fishing in the northwestern part of the White Sea," by B. M. Tambovtsev, pp. 53-56.

"Zooplankton of the White Sea and its importance as food for the herring," by L. M. Epshtein, pp. 98-104.

#### ICELAND:

"Icelandic fishing vessels. Part One," by Hjalmar K. Bardarson, article, Iceland Review, vol. 2, no. 4, 1964, pp. 29, 31-33, 35-36, illus., printed, single copy Kr. 50 (about US\$1.15). Iceland Review, P.O.B. 1238 Reykjavik, Iceland. As of Jan. 1, 1964, Iceland's fishing fleet of 859 vessels amounted to 75,171 gross registered tons, or more than half the total of 145,000 tons for all vessels. When the vikings first came to Iceland in the 9th century, they brought with them their vessels and the skills necessary to build and operate them. Today, oak planking fishing vessels of up to 200 tons are still being constructed in Iceland. Most vessels constructed in Icelandic yards are of wood. All those vessels are built in accordance with the Icelandic regulations. However, during the last 10 years the number of steel fishing vessels has been increasing very rapidly as compared with the wooden ones. The first steel vessels registered in Iceland were steam trawlers bought from England in 1905. Fewer deep-sea trawlers have been constructed recently for Icelandic owners in recent years. Final rules have not yet been drawn up for the construction of steel vessels. The brisk building program of combination vessels of between 100-300 tons is due mainly to the development in Iceland of new herring fishing techniques, using the hydraulic power block from a special crane above the boatdeck on which the net is placed, together with the increasing use of asdic equipment for locating submerged herring shoals.

#### ILLINOIS:

Fish Management Program of the Illinois Department of Conservation, by Al Lopinot, Fish Mgt. Mimeo No. 14, 2 pp., processed, Oct. 1961, Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

#### INDIAN OCEAN:

Brief Review of the Activities of the Second Indian Ocean Expedition of the Azov-Black Sea Fisheries Scientific Institute, by B. S. Solov'ev, OIS 64-21652, 3 pp., processed, 1964. (Translated from the Russian, Okeanologiya, vol. 3, no. 5, 1963, pp. 936-938.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Studies of the Indian Ocean during the 35th Cruise of the R/V "Vityaz", by P. L. Bezrukov, JPRS 23281, 10 pp., processed. (Translated from the Russian, Okeanologiya, vol. 3, no. 3, 1963, pp. 540-549.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20260.

#### INDUSTRIAL PRODUCTS:

"Cuando habla el ingenio" (When the talented person speaks), article, Mundo Pesquero, vol. 2, no. 15, Nov. 1964, pp. 16-17, illus., printed in Spanish, single copy S/. 6.00 (about 25 U. S. cents). Mundo Pesquero, A. Oscar R. Benavides 1207 (Colonial), Lima, Peru. Discusses how technologists can recommend methods and procedures in the fish meal and oil industry for reducing costs of production and improving product quality.



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#### INTERNATIONAL COMMISSIONS:

Available from International Commission for the Northwest Atlantic Fisheries, Bedford Institute of Oceanography, Dartmouth, N. S., Canada:

International Commission for the Northwest Atlantic Fisheries, Annual Proceedings for the Year 1963-64, vol. 14, 43 pp., printed, 1964. Presents an account of the activities of the Commission's Secretariat during the year ending June 30, 1964, including financial statements; a report of the Fourteenth Annual Meeting held June 1-6, 1964, in Hamburg, Federal Republic of Germany; and summaries of research in the Northwest Atlantic during 1963 by subareas, including work carried out by member countries, hydrography and plankton reports, stocks of cod, ocean perch, and other fish, and commercial fishing.

International Commission for the Northwest Atlantic Fisheries, Redbook 1964, Part II--Research Reports by Member Countries; Part III--Selected Papers from the 1964 Annual Meeting, 150 pp., illus., processed, Nov. 1964, limited distribution. Part II contains reports on research in the ICNAF area in 1963 by Canadian, Danish, German, Icelandic, Norwegian, Polish, Portuguese, Spanish, United Kingdom, U.S.S.R., and United States groups. The report by each country group discusses the subareas commonly fished by its vessels; and presents information on the status of the fisheries and, frequently, on environmental and biological studies. Part III includes papers on: "The selectivity of a flap-type upside chafer," by R. J. H. Beverton; "Review of tagging publicity methods used by ICNAF member countries," by S. A. Horsted; and "Minimum mesh sizes and equivalents for different materials to meet ICNAF regulations," by F. D. McCracken.

International Commission for the Northwest Atlantic Fisheries, Research Bulletin, No. 1, 1964, 111 pp., illus., printed. This issue is the first of a new annual series intended to provide a means of publishing regularly the results of individual research relevant to the International Commission for the Northwest Atlantic Fisheries. Included are articles on: "Landings, fishing effort, and apparent abundance in the yellowtail flounder fishery," by Fred E. Lux; "1963 cod otolith exchange," by A. C. Kohler; "The effect of catch size on the selectivity of otter trawls," by V. M. Hodder and A. W. May; "Electronic flash photography of Gadoid otoliths," by R. W. Blacker; "Redfish above the ocean depths," by G. P. Zakharov; "Abundance, age composition of landings, and total mortality of haddock caught off southern Nova Scotia, 1956-1961," by R. C. Hennemuth, M. D. Grossein, and F. D. McCracken; "Discrepancies between otolith-lab and N. I. O. salinometers," by R. A. Cox and A. R. Folkard; "Two mechanical aids for otolith reading," by B. C. Bedford; "A method of preparing otoliths and transparencies of cod otoliths," by J. Messtorff; "Hydrographic conditions off the coasts of Labrador and Newfoundland in November-December 1962," by J. W. Ramster; "Estimating the natural mortality rate of the sea scallop (*Placopecten magellanicus*)," by Arthur S. Merrill and J. A. Posner; and "Adult redfish in the open ocean," by G. T. Henderson and D. H. Jones.

(International North Pacific Fisheries Commission) Annual Report, 1963, 173 pp., illus., printed, 1964. International North Pacific Fisheries Commission, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada. This is the tenth consecutive annual report of the International North Pacific Fisheries Commission, established by a Convention between Canada, Japan, and the United States on June 12, 1953, for the purpose of promoting and coordinating the necessary scientific studies and to recommend the required conservation measures in order to secure the maximum sustained productivity of fisheries of joint interest. The report contains summary accounts of the annual meeting of the Commission held in Tokyo, Nov. 18-23, 1963, of an informal meeting, Oct. 4, 1963, and of an interim meeting held in Tokyo, Feb. 5, 1963; and a brief resume of administrative activities during the year. It also presents summaries prepared by the three national research agencies of investigations which they carried out under the planning and coordination of the Commission. Of principal concern are the salmon, halibut, herring, and king crab fisheries.

(North Pacific Fur Seal Commission) Proceedings of the Seventh Annual Meeting, February 24-27, 1964, Moscow, U.S.S.R., 28 pp., processed, Dec. 1964. Secretary, North Pacific Fur Seal Commission, U. S. Fish and Wildlife Service, Washington, D. C. 20240. The North Pacific Fur Seal Commission was established in January 1958, during a meeting held in Washington, D. C. The Commission was organized pursuant to the Interim Convention on Conservation of North Pacific Fur Seals, signed by the Governments of Canada, Japan, the U.S.S.R., and the United States in Washington, D. C., on February 9, 1957. The Convention came into force on October 14, 1957. This report contains a summary of the Seventh Annual Meeting, a report of the Standing Scientific Committee, a list of participants at the meeting, and the administrative report of the Secretary to the Seventh Meeting.

#### IRAQ:

Foreign Trade Regulations of Iraq, by Jackson B. Hearn, OBR 64-131, 8 pp., printed, December 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.) Iraq's trade policy is designed to protect domestic industry, provide commodities considered essential to the domestic economy, limit imports of less essential items, control prices, and increase the share of Iraqi nationals in the country's trade. In addition to trade policy, the report discusses the import tariff system, sales and other internal taxes, documentation and fees, and labeling and marking requirements. Also covers special customs provisions, nontariff import controls, Iraq's export controls, United States foreign trade controls, and Government representation between the two countries.

#### IRRADIATION PRESERVATION:

Irradiation Preservation of Fresh-Water Fish and Inland Fruits and Vegetables, by John A. Emerson and others, Report No. COO 1283-12, 86 pp., printed, August 1964. U. S. Atomic Energy Commission, Washington, D. C. 20545.



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Articles, Food Technology, vol. 18, June 1964, printed; Garrard Press, 510 N. Hickory, Champaign, Ill.:

"Irradiation preservation of Pacific Coast shellfish. I--Storage life of king crab meats at 33° and 42° F.; II--Relation of bacterial counts, trimethylamine and total volatile base to sensory evaluation of irradiated king crab meat," by D. Miyauchi and others, pp. 138-147.

"Preservation of fresh unfrozen fishery products by low-level radiation. Parts I, II, III," by Richard O. Brooke and others, pp. 112-120.

#### ITALY:

Foreign Trade Regulations of Italy, by Fernand Lavallee, OBR 64-139, 8 pp., printed, December 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. 20402.) The Italian Government includes an export promotion program in its broad economic planning and concurrently encourages imports as a means of providing necessary foodstuffs, raw materials, and industrial equipment to keep domestic prices down or enlarge and modernize the country's manufacturing facilities. In addition to trade policy, the report discusses Italy's import tariff system, sales and other internal taxes, shipping documents, and labeling and marking requirements. It also covers special customs provisions, nontariff import controls, Italy's export controls, United States foreign trade controls, and Government representation between that country and the United States.

"El mercado Italiano de conservas de pescado" (The Italian canned fish market), article, Industria Conservera, vol. 30, no. 302, Aug. 1964, p. 209, printed in Spanish. Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

#### JAPAN:

"Oceanography in Japan," by O. V. Kol'man, article, Okeanologiya, vol. 3, no. 3, 1963, pp. 559-564, printed in Russian. Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.

#### LABELING:

National Association of Frozen Food Packers Program of Labeling Practices for Labeling in the Consumer Benefit, 183 pp., illus., processed, 1964, price available from publisher. National Association of Frozen Food Packers, 919 18th St. NW., Washington, D. C. 20006. The manual presents a program for uniform and consistent placement of required information and helpful guidelines on voluntary labeling matters concerning frozen foods that reflect good commercial practice. It calls for the placement of essential and helpful information on three consecutive panels of the package so that the shopper will always know where to find the information she seeks. They are designated as: (1) The Shopper's Panel (main display panel) which is to carry the product name, net quantity, and name of packer or distributor, plus informative terms about the style, size, tenderness, variety, quality, and kitchen-ease of the product (ready to cook, pre-

cooked, prebaked); (2) The Composition Panel (front riser panel) where the statement of ingredients is to be made; and (3) The Family Panel (bottom of package) where helpful information is to be presented on handling the product, opening the package, cooking or preparing the product, innovations for serving, number of servings, and nutritional quality. The manual, containing labeling profiles for more than 200 kinds and styles of frozen foods, is presented in looseleaf form in order to allow the inclusion of additional and substitute materials as the occasion may arise. Labeling profiles for frozen fishery products will be added later.

#### LAKE ERIE:

Lake Erie Sport Fishing Survey, by Myrl Keller, Publication W-316, 19 pp., printed, 1962. Division of Wildlife, Ohio Department of Natural Resources, Columbus, Ohio.

#### LINGCOD:

Deamination of Adenine and Related Compounds and Formation of Deoxyadenosine and Deoxyinosine by Lingcod Muscle Enzymes, by H. L. A. Tarr and A. C. Comer, FRB Studies No. 894, 7 pp., printed. (Reprinted from Canadian Journal of Biochemistry, vol. 42, 1964, pp. 1527-1533.) Technological Research Laboratory, Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

#### LOBSTER:

Contribuicao para o Conhecimento da Pesca e da Biologia do Lagostim (NEPHROPS NORVEGICUS L.) na Costa Portuguesa (Contribution to the Knowledge of the Fishery and the Biology of the Norway Lobster - *Nephrops norvegicus* L.--off the Portuguese Coast), by Maria Jose de Figueiredo and Ivone Ferreira Barraca, Notas e Estudos do Instituto de Biologia Maritima No. 28, 44 pp., illus., printed in Portuguese with English summary. Instituto de Biologia Maritima, Lisbon, Portugal.

#### MACKEREL:

"O svyazi raspredeleniya i pitaniya skumbrii v severo-zapadnoi chasti Chernogo morya" (Relationship between distribution and feeding of mackerel in the northwestern part of the Black Sea), by A. V. Krotova, article, Referativnii Zhurnal-Biologiya, 1963, Abstract No. 17127, printed in Russian. Akademiia Nauk SSSR, Institut Nauchnoi-Informatsii, Moscow, U.S.S.R.

#### MARKETING:

Seafood Merchandising--A Guide for Training Programs, OE-82014, 77 pp., illus., printed, 1964, 30 cents. Office of Education, U. S. Department of Health, Education, and Welfare, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) This bulletin suggests guidelines for the promotion and organization of training programs that will aid in the orderly flow of fishery products to the consumer. Chapter I, the seafood industry and its problems, discusses distribution channels, marketing problems, and need for education. Chapter II, organizing and operating a seafood merchandising program, covers briefly elements in the program, the coordinator, enlisting leaders, organizing the course, financial arrangements, personnel, materials, promotion, teaching approach and methods, course eval-



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tion, and other topics. Chapter III, curriculums of seafood merchandising training courses, outlines 9 different courses in retail seafood business management and supervisory level personnel, operational level personnel, and for wholesaling, consumer educators, and mass feeders. Chapter IV, a sample seafood merchandising course, offers educational material on general fisheries information, product information, promotional activities for the seafood industry and seafood department, principles of salesmanship, and operating a seafood business. It also presents information on supervisory techniques; economics of seafood merchandising; nutritional value, preparation, and cooking of seafood; trends in seafood and its merchandising; and Government role in seafood merchandising.

#### MASSACHUSETTS:

Marine Division of Marine Fisheries, Massachusetts Department of Natural Resources, 15 Ashburton Pl., Boston 8, Mass.:

Annual Report, Fiscal Year July 1, 1963-June 30, 1964, 100 pp., illus., processed, Sept. 1, 1964. Discusses accomplishments of the Division of Marine Fisheries during the year ending June 30, 1964. Covers Marine Fisheries Advisory Commission meetings during 1964, lobster research and management, shellfish research and management, estuarine research program, appraisal and control of coastal operations and marine engineering projects, finfish studies, and legislative studies. Includes statistical tables showing data on the lobster fishery; sea crab fishery; shore, net, and pound fishery, and Massachusetts fishery products landings. The appendixes contain information on a proposal for lobster research, the Federal Commercial Fisheries Research and Development Act of 1964, the proposed laboratory for Cat Cove, Salem, Mass., blackback flounder tagging data, and other subjects.

Report of the Department of Natural Resources Relative to the Coastal Wetlands in the Commonwealth, Under Chapter 15 of the Resolves of 1963, Senate Document No. 855, 77 pp., illus., printed, Jan. 1964.

Massachusetts Department of Commerce & Development, 150 Causeway St., Boston 14, Mass.:

Commercial Fishing--A Harvest of the Sea, 17 pp., illus., printed, 31 cents. Presents "a new look at Massachusetts' oldest industry." Describes the history of her fisheries from the time of the Pilgrims to the present day; the fishing grounds of the Atlantic, Gulf of Maine, the Grand Banks, Georges Bank, and distant parts of the world frequented by her fishermen; the fishery resources of the State's waters; employment of 4,000 fishermen and 3,200 workers in the processing industries; and economic importance of the fisheries. Also explains the gear used--otter trawls, purse seines, line trawls, and lift nets; the lobster fishery and its value; the scallop fishery and its principal port of New Bedford; modernization of vessels; and the promising future of her fisheries. Included are several recipes for cooking fish and shellfish--fillet of sole Amandine, scallop salad, fish chowder, baked hadron, scallops and rice, cod bean bake, fried ocean perch fillet, and ocean perch Amandine.

Massachusetts Salt Water Fishing Guide, 65 pp., illus., printed, 1964.

#### MEDITERRANEAN SEA:

"Conference on the study of the Mediterranean" (Oct. 1962), by L. M. Fomin article, Okeanologiya, vol. 3, no. 1, 1963, pp. 177-178, printed in Russian. Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.

The Fourth Mediterranean Expedition of R/V "Akademik S. Savilov", by Yu. E. Ochakovskii, JPRS 23281, 5 pp., processed. (Translated from the Russian, Okeanologiya, vol. 3, no. 3, 1963, pp. 550-554.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### MEXICO:

Foreign Trade Regulations of Mexico, by Walter Haidar, OBR 64-128, 8 pp., printed, December 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.) Mexico's trade policy emphasizes industrialization. Its industries and internal consumer markets are protected by high tariffs and by import controls. The report discusses Mexico's import tariff system, sales and similar internal taxes, documentation and fees, labeling requirements, and special customs provisions. Also covers nontariff import controls, Mexico's export controls, United States foreign trade controls, and diplomatic representation between the two countries.

#### NAVIGATION AIDS:

"The first drifting radio-buoys," by Ya. Ya. Gakkel and L. P. Samsoniya, article, Deep-Sea Research, vol. 9, Nov./Dec. 1962, pp. 538-546, printed. (Translated from the Russian, Okeanologiya, vol. 1, no. 4, 1961, pp. 691-700.) Pergamon Press, 122 E. 55th St., New York, N. Y. 10022.

#### NETHERLANDS:

Selling in the Netherlands, by Jacobus T. Severiens, OBR 64-133, 16 pp., printed, December 1964, 15 cents. Bureau of Foreign Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) The Netherlands is an important customer of the United States, and excellent possibilities exist for expanding sales of many American products. The report explains the road to selling--import channels and requirements; industrial property rights; distribution practices; and transportation, port, and storage facilities. Also covers commercial practices, marketing aids, Netherlands Government procurement, United States export credit insurance and guarantees, and notes for business travelers on entrance requirements and living costs and conditions.

#### NETS:

"An inexpensive adaptation for plankton nets," by John W. Foerster, article, Turtlox News, vol. 42, no. 1, 1964, pp. 22-23, printed. General Biological Supply House, Inc., 8200 S. Hoyne Ave., Chicago, Ill.

#### NEW ZEALAND:

Report on Fisheries for 1963, 25 pp., printed, 1964. Marine Department, Wellington, New Zealand. Dis-



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cusses total New Zealand landings by class and by year, 1946-63; spiny lobster landings, 1954-63; fishing vessels and personnel; fish landings by species, 1962-63; methods of capture; landings at ports; foreign trade in fish and shellfish; sport fishing; fish-liver oil production; whaling, 1963 season; rock and dredged oysters; and production of toheroas (edible mollusc). Also covers whitebait fishing; mussel production; angling licenses; research and investigation--research vessel operations, grid-patterned trawling, marine fish studies, marine mammal projects, shellfish studies, survey of fishing grounds, trout fisheries, Quinal salmon, use of insecticides, and lake eutrophication and weed growth studies. Activities of the Fishing Industry Advisory Council, Freshwater Fisheries Advisory Council, and Fishing Industry Board; and legislation affecting fisheries are reported. Includes statistical tables on the number of fishing vessels and fishermen by port or district and method of fishing; quantity of fish and shellfish landed by port; quantity of fish landed by species and type of gear; landings by species and port; landings of fish and spiny lobsters by ports and months; and foreign trade in fishery products.

#### NORTH AMERICA:

The Book of Fishes; the Better-Known Food and Game Fishes and the Aquatic Life of the Coastal and Inland Waters of North America, edited by John Oliver La Gorce, 350 pp., illus., printed, 1961. The National Geographic Society, 17th and M Sts. NW., Washington, D. C.

#### NORTH PACIFIC OCEAN:

Oceanological Studies in the North Pacific, by D. E. Gershanovich, JPRS 24313, 5 pp., processed. (Translated from the Russian, Okeanologiya, vol. 3, no. 6, pp. 1119-1123.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### NORTHWEST ATLANTIC OCEAN:

Fishes of the Western North Atlantic, Part 3, 597 pp., illus., printed, 1964, \$27.50. Sears Foundation for Marine Research, Bingham Oceanographic Laboratory, Yale University, New Haven, Conn. This volume includes studies of nearly 100 species in 35 genera of "bony fishes." In addition to the descriptive details and discussion of orders, suborders, families, genera, and species, the key and synopses relate distinguishing characteristics that aid identification. Details, aside from the description of the species itself include color, size, development, habitat, general habits, food, parasites, predators, sporting qualities, range, abundance, and commercial importance. Some of the species covered are salmon, trout, tarpon, char, anchovies, and herring.

#### NORWAY:

Foreign Trade Regulations of Norway, by Grant Olson, OBR 64-137, 8 pp., printed, Dec. 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. 20402.) Norway's trade policy is aimed at expanding its foreign trade and shipping services. Exports of fresh and frozen fish are subject to the license control of the Fish Transport Division of the Ministry of Fisheries; canned fish come under the licensing control of the Fish

Canneries Export Committee. However, licenses for those products are issued automatically. In addition to trade policy, the report discusses Norway's import tariff system, sales and other internal taxes, shipping documents, and labeling and marking requirements. It also covers special customs provisions, nontariff import controls; Norway's export controls, United States foreign trade controls, and Government representation between that country and the United States.

"Lønnsomheten av fisket med motorbåter under 40 fot in 1962" (Profitability of fishing with motorboats under 40 feet in 1962), article, Fiskets Gang, vol. 50, no. 49, Dec. 3, 1964, pp. 717-732, illus., printed in Norwegian. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

#### NUTRITION:

"Studies with the use of fish oil fractions in human subjects," by Kunitaro Imaichi and others, article, American Journal of Clinical Nutrition, vol. 13, Sept. 1963, pp. 158-168, printed. American Journal of Clinical Nutrition, 49 W. 45th St., New York, N. Y. 10036.

#### OCEANOGRAPHY:

Data Report Equalant I, Volume I, 284 pp.; Volume II, Publication G-3, 790 pp., illus., printed, 1964, \$5.50 and \$5, respectively. National Oceanographic Data Center, Washington, D. C. 20390.

Data Report Equalant II, NODC Publication G-5, 754 pp., illus., printed, 1964, \$5. U. S. Naval Oceanographic Office, Washington, D. C. 20390.

"Djuphavsslätter och djuphavsgravar" (Deep-sea plains and deep-sea trenches), by Auguste Piccard, article, Svenska Vastkustfiskaren, vol. 35, no. 1, Jan. 10, 1964, pp. 8-10, illus., printed in Swedish. Svenska Vastkustfiskarnas Centralforbund, Ekonomiskt kottet Postbox 1014, Goteborg 4, Sweden.

Economic Benefits from Oceanographic Research (a Special Report of the Committee on Oceanography), Publication 1228, 56 pp., printed, 1964, \$2. Printing and Publishing Office, National Academy of Sciences, National Research Council, Washington, D. C. 20418. This report attempts to estimate some of the future economic benefits that could result from oceanographic research, and to compare them with the cost of doing the research. These benefits are of two kinds: annual savings in costs of goods and services, and increases in production. The report discusses anticipated benefits of oceanographic research in fisheries production, marine minerals, marine recreation, ocean shipping, long-range weather forecasting, sewage disposal, international cooperation, and national defense. Rational development of the United States domestic fisheries could result in doubling the production in 15 years, state the authors.

Geo Marine Technology, vol. 1, no. 2, Dec. 1964/Jan. 1965, 52 pp., illus., processed. INTEL, Inc., 739 National Press Bldg., Washington, D. C. 20005. Contains, among others, articles on: "Data processing at sea," by Robert M. O'Hagan; "U.S.C.G.--175-year history of working at sea," by E. John Long; "Mesoscaphe"; "Winch Buoys"; and "Russian Oceanography



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

International Directory of Oceanographers (Fourth Edition), compiled by Richard C. Vetter, 283 pp., processed, 1964. Printing and Publishing Office, National Academy of Sciences/National Research Council, 2101 Constitution Ave. NW., Washington, D. C. 20418. The publication of the fourth edition of the Directory four years after the previous edition (rather than the customary five) is evidence of accelerated world-wide oceanographic activities. The primary purpose of the Directory continues to be to assist oceanographers in corresponding with and visiting their colleagues in other countries. The lists are informal, unofficial, and do not constitute a complete directory of all who might be identified as oceanographers. The main criteria for inclusion are an individual's active participation in oceanographic programs and publication in scientific journals. Included are the names, addresses, and principal fields of 2,563 people in the biological, physiological, geological, chemical, engineering, and administration branches of oceanography, listed by country. A new feature is an appendix containing addresses of most of the large international organizations dealing with the marine sciences.

Life in the Sea, Photography: Lennart Nilsson, Text: Gösta Jägersten, 184 pp., illus., printed, 1964, \$10. Basic Books, 404 Park Ave. S., New York, N. Y. 10016. To many of us the sea has always been a mysterious universe seen mostly superficially or from afar. We know something of the large animals that inhabit the sea, but little or nothing of its small creatures. In this book the diverse and romantic small animals of the sea are explored by a photographer and a zoologist. The wedding of text and photographs gives a closeup of the smaller and less-known creatures to be found in the sea. The use of everyday language makes this book valuable as a general introduction to many of the unknown creatures of the sea, but its artistic presentation makes it an aesthetic addition to any library. A more intimate view of the sea is the general purpose of the book. The preface explains that its principal aim is to give the interested layman a picture of the "richer" world of "mainly smaller forms of marine life." Some of the creatures included in this book have never before been photographed and published either in popular or scientific publications, according to the author of the text. Also, all of the pictures are of living specimens. Described and illustrated with photographs (a few in color) are unicellular organisms; sponges; Cnidaria (hydrozoans, jellyfish, and coral); comb jellies or sea-gooseberries; flatworms and round worms; Myzostomida (parasites living on spiny-skinned animals); bristle worms; polychaetes (thread-like segmented worms) and annelids; sea-washed sand; crustaceans; sea spiders; mollusks; moss animals; spiny-skinned animals (such as starfish); invertebrate relatives of the vertebrates (such as sea squirts); and the pipefish and their habitat. Each chapter has a clear explanation and photographic illustrations. Included is a short discussion of the habitat in which they live. As an example of how a complex subject is presented in clear everyday language, this is how the discussion of sea-gooseberries or comb jellies begins: "If you study the contents of a plankton net, one may find, in addition to great numbers of small organisms, many transparent lumps of jelly about the size and shape of a gooseberry. Transfer them carefully

to a jar of water and it will be seen that they are animals which, if uninjured and left in peace for a time, stretch out a pair of long, somewhat branched tentacles from two pockets situated on opposite sides of the body." Anyone interested in the sea should have a copy of this book.

--J. Pileggi

On the Limits of Accuracy in the Echo Soundings of Ocean Regions, by H. Gabler, Trans-107, 15 pp., printed. (Translated from the German, Deutsche Hydrographische Zeitschrift, vol. 12, no. 6, 1959, pp. 229-243.) Naval Oceanographic Office, Department of the Navy, Washington, D. C. 20240.

Most Efficient Use of Scientific and Information Materials in the Field of Oceanology, by V. A. Polushkin, JPRS 23281, 3 pp., processed. (Translated from the Russian, Okeanologiya, vol. 3, no. 3, 1963, pp. 537-539.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Oceanographic Computer Programs for the Programmed Data Processor-5, by Robert M. O'Hagan, Oceanographic (Unpublished) Manuscript, 44 pp., processed, Oct. 15, 1964, limited distribution. U. S. Coast Guard Oceanographic Unit, Washington, D. C. 20220.

Oceanographical Observations in the Indian Ocean in 1961, H.M.A.S. DIAMANTINA (Cruise Dm 3/61), Oceanographical Cruise Report No. 11, 218 pp., illus., processed, 1964. Division of Fisheries and Oceanography, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia.

"Organic aggregates in seawater and the dynamics of their formation and utilization," by Gordon A. Riley, article, Limnology and Oceanography, vol. 8, no. 4, 1963, pp. 372-381, printed. Limnology and Oceanography, K. M. Rae, c/o George H. Lauss, University of Michigan, Ann Arbor, Mich.

"Who will own the ocean's wealth?" by William J. Cromie, article, United States Naval Institute Proceedings, vol. 91, no. 1, Jan. 1965, pp. 52-61, illus., printed, single copy 75 cents. United States Naval Institute, Annapolis, Md. As long as no one used the world ocean for anything but an inexpensive highway and a barrier against enemies, there was little interest in owning part of it. Freedom of the sea was an easy doctrine to preach and to maintain. But now that nations are convinced that the water world contains valuable resources, they are gradually encroaching upon this freedom. A struggle for ownership of the ocean is arising, and a new law of the sea is gradually taking form. This article documents the disputes among many nations for control of the sea's resources, both mineral and animal. The author suggests that a respected international agency would be a buffer against explosive national tempers and could attempt compromise solutions to such disputes. It could coordinate and sponsor research and development. The agency could also be given power to grant exploration and exploitation leases, and to control and monitor disposal of radioactive and other wastes.

The following reports of the U. S. Program in Biology, International Indian Ocean Expedition, are available from the Woods Hole Oceanographic Institution, Woods Hole, Mass.:



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

Narrative Report: Anton Bruun Cruise 2, News Bulletin No. 3, 16 pp., illus., processed, Jan. 1964.

Narrative Report: Anton Bruun Cruise 3, News Bulletin No. 4, 11 pp., illus., processed, Feb. 1964.

Narrative Report: Anton Bruun Cruise 4-A, News Bulletin No. 5, 28 pp., illus., processed, March 1964.

Narrative Report: Anton Bruun Cruise 4-B, News Bulletin No. 6, 22 pp., illus., processed, April 1964.

Narrative Report: Anton Bruun Cruise 5, News Bulletin No. 7, 14 pp., illus., processed, Oct. 1964.

Narrative Report: Anton Bruun Cruise 6, News Bulletin No. 8, 8 pp., illus., processed, Dec. 1964.

Narrative Report: Anton Bruun Cruise 7, News Bulletin No. 9, 14 pp., illus., processed, Jan. 1965.

The following reprints are available from the Woods Hole Oceanographic Institution, Woods Hole, Mass. 02543.:

Adsorption of Phosphates onto Bubbles, by E. R. Baylor, W. H. Sutcliffe, and D. S. Hirschfeld, Contribution No. 1259, 5 pp., illus., printed. (Reprinted from Deep-Sea Research, vol. 9, no. 2, 1962, pp. 120-124.)

Dissolved Organic Matter in Seawater as a Source of Particulate Food, by E. R. Baylor and W. H. Sutcliffe, Jr., Contribution No. 1383, 3 pp., illus., printed. (Reprinted from Limnology and Oceanography, vol. 8, no. 4, Oct. 1963, pp. 369-371.)

Sea Surface Chemistry and Langmuir Circulation, by William H. Sutcliffe, Jr., Edward R. Baylor, and David W. Menzel, Contribution No. 1346, 11 pp., illus., printed. (Reprinted from Deep-Sea Research, vol. 10, 1963, pp. 233-243.)

The following articles are from Okeanologiya, vol. 3, 1963. Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.:

"Float for oceanographic research," by I. V. Faren-gol'ts, no. 4, p. 753.

"A flying oceanographic laboratory," by L. I. Itskevich, no. 5, p. 944.

"New bottom relief charts of the Pacific Ocean," by G. B. Udintsev, no. 1, pp. 169-175.

"Oceanographic vessels of the world," by L. I. Itskevich, no. 4, p. 758.

"Second Atlantic Expedition of the Academy of Sciences of the U.S.S.R. of the ships Sergei Vavilov and Petr Lebedov," by Yu. Yu. Zhitkovskii, no. 4, pp. 749-750.

#### ODOR ABATEMENT:

Is it Possible to Avoid the Smell from the Herring Meal Plants? by E. Gloppstad, G. Sand, and E. Arneson, Translation Series No. 161, printed. (Translated from the Norwegian, Medlinger fra Sildolje -og Sildemelindustri Forskniings - Insti-

tutt, No. 4, 1953.) Technological Station, Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

#### OYSTERS:

"Maintenance of oyster cells In Vitro," by Frank O. Perkins and R. Winston Menzel, article, Nature, vol. 204, no. 4963, Dec. 12, 1964, pp. 1106-1107, printed single copy 6s. (about 85 U. S. cents). St. Martin's Press, Inc., 175 Fifth Ave., New York, N. Y. 10010

Nucleotides of the Pacific Oyster CRASSOSTREA GIGAS (Thunberg), by V. Wylie and M. Smith, FRS Studies No. 880, 4 pp., illus., printed. (Reprinted from Canadian Journal of Biochemistry, vol. 42, 1964, pp. 1347-1351.) Technological Research Laboratory, Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

Oysters and Oyster Culture in Norway, by Torbjorn Gaarder, and Paul Bjerkan, Translation Series No. 217, 96 pp., printed. (Translated from the Norwegian, Jon Griegs Boktrykkeri, Bergen, Norway, 1934.) Atlantic Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.

The following reprints from Proceedings of the National Shellfisheries Association, vol. 53, 1962, are available from the Virginia Institute of Marine Science, Gloucester Point, Va.

Oyster Mortality Studies in Virginia. IV--MSX in James River Public Seed Beds, by Jay D. Andrews, Contribution No. 155, pp. 65-84, illus., processed.

Studies on Oyster Scavengers and Their Relation to the Fungus DERMOCYSTIDIUM MARINUM, by Hilda Dickson Hoese, Contribution No. 162, pp. 161-174, illus., processed.

#### PANAMA:

"Potencialidad de la industria pesquera en Panamá" (Potential of the fishing industry in Panama), by Lenin Sucre Benjamin, article, Pesca y Marina, vol. 16, no. 6, Dec. 1964-Jan. 1965, pp. 14-15, printed in Spanish. Fernando Flores Limitada, 705 N. Windsor Blvd., Los Angeles 38, Calif.

#### PHYSIOLOGY:

"Critical contribution to the methods of evaluating the body-scale relation in studies of growth in fishes," by Milan Penaz, article, Zoologicki Listy, vol. 11, no. 1, 1962, pp. 77-80, printed in Czechoslovak. Českoslovensha Akademie, Ved Zoologieka, Komise, Nove Mestv, Vodickova 40, Prague 1, Czechoslovakia

The Effect of Certain Physical Factors on the Sensitivity of Fish, L. Yu. A. Kholodov and K. B. Akhmedov, OTS 62-11771, 6 pp., processed. (Translated from the Russian, Biologiya Belogo Morya, vol. 1, 1962, pp. 256-261.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230

#### PIRANHA:

Survival Potential of Piranhas in Florida, by Martin A. Moe, Jr., Contribution No. 79, 14 pp., illus., printed. (Reprinted from Quarterly Journal of the Florida Academy of Sciences, vol. 27, no. 3, Sept. 1964, pp. 197-210.) Marine Laboratory, Florida Board of Conservation, St. Petersburg, Fla.



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## PILCHER:

"Variations in plaice fecundity in the Clyde area," by B. Bagenal, article, Journal of the Marine Biological Association of the United Kingdom, vol. 43, 1963, pp. 391-399, printed, Cambridge University Press, 32 E. 57th St., New York, N. Y. 10022.

## PLANKTON:

Open Sea: Its Natural History. Part I--The World of Plankton, by Alister Hardy, 322 pp., illus., printed, 1965, \$12.50. Houghton Mifflin Co., 2 Park St. Boston 7, Mass.

Selected Articles on Plankton Studies, OTS 63-11106, 50 pp., illus., processed, 1964, 50 cents. (Translated from the Russian, Nauchnye Doklady Vysshei Shkoly, Biologicheskie Nauki, no. 1, 1961, pp. 11-12; Zoologicheskii Zhurnal, vol. 40, no. 1, 1961, pp. 122-128; Doklady Murmanskogo Morskogo Biologicheskogo Instituta, no. 2 (6), 1960, pp. 68-113.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230. Contains: "A modification of the Brodskii-Baskakov method for rapid plankton counting" (Modifikatsiya metoda Brodskogo-Baskakova dlya bystrogo scheta planktona), by B. M. Mednikov; "High-speed plankton net" (Skorostnaya planktonicheskaya set'), by V. A. Yahsnov; and "Long-term dynamics of the plankton biomass in the southern Barents Sea and the factors determining it" (Mnogoletnaya dinamika biomassy planktona yuzhnoi chasti Barentseva morya i faktory, ee opredelyayushchie), by E. A. Zelikman and M. M. Kamshilov.

## POLAND:

"Committee for Marine Research of the Polish Academy of Sciences," by M. Mysolvskii, article, Okeanologiya, vol. 3, no. 3, 1963, pp. 558-559, printed in Russian. Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.

"Aspects of the fishing industry," by Jerzy Grajter, article, Translations on East European Agriculture, Forestry and Food Industries No. 136, JPRS 18367, pp. 86-91, processed, March 26, 1963, \$2.25. (Translated from the Polish, Tygodnik Morski, vol. 6, no. 1, 1963, pp. 1, 4.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Following translations are for sale by the Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.:

Fishing Industry in 1962, JPRS 19557, 8 pp., processed, March 4, 1963, \$2.25. (Translated from the Polish, Gospodarka Rybna, vol. 15, no. 3, 1963, pp. 21-23.)

Fulfillment by Fish Industry, JPRS 17768, 5 pp., processed, Feb. 21, 1963, \$2.75. (Translated from the Polish, Gospodarka Rybna, vol. 14, no. 9, Dec. 1962, pp. 27-28.)

## POLLOCK:

"Parasitic infestation of the Alaskan pollack in relation to its utilization as a food fish," by A. V. Gusev, V. V. Zhukov, and Yu. A. Strelkov, article, Transactions of Doklady Biological Sciences Sections, vol. 1, nos. 1-6, pp. 344-346, printed. (Translated from the Russian, Doklady Akademii Nauk SSSR,

vol. 125, no. 5, 1959, pp. 1174-1176.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

## POND FISHERIES:

Fish Dealers, compiled by Al Lopinot, Fish Mgt. Mimeo No. 16, 4 pp., processed, April 1964. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706. Lists names and addresses of dealers throughout the United States who raise and supply fish for pond and lake stocking purposes, and species and sizes handled by each dealer.

"Increasing the fish productivity of rearing ponds by the use of fertilizers," by L. I. Mamontova, article, Doklady Moskov. Sel'skokhoz. Akad. Im. K. A. Timiryazeva, vol. 69, 1961, pp. 171-174, printed in Russian. Doklady Moskov. Sel'skokhoz. Akad. Im. K. A. Timiryazeva, Moscow, U.S.S.R.

## PORTUGAL:

"Nuevas perspectivas en el sistema Portugues de comercializacion de las conservas de pescado" (New outlook in the Portuguese system of marketing canned fish), article, Industria Conservera, vol. 30, no. 302, Aug. 1964, pp. 213-214, printed in Spanish. Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

## PROCESSING:

"Mechanization of the preliminary processing of salted herring (at the Kaliningrad fish collective)," by M. M. Piletskii, article, Raboty Rybokhozyaistvennoi Laboratorii Voronezhskogo Universiteta, vol. 2, 1962, pp. 62-71, printed in Russian. Raboty Rybokhozyaistvennoi Laboratorii Voronezhskogo Universiteta, Voronezh, U.S.S.R.

Regulations on Certain Sea Food Processing Industries in Mediterranean Countries, by D. Remy, GFCM Studies and Reviews No. 24, 32 pp., processed in English (French version also available), Sept. 1964. General Fisheries Council for the Mediterranean, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy. Sections on semipreserves, salting, smoke curing, and dry curing each discuss definitions, species used, processing standards, and packaging. Countries concerned are France, Greece, Morocco, Spain, Tunisia, Turkey, and Yugoslavia.

## QUALITY:

Elintarvikkeiden Aistinarvostelumenetelmista (On sensory testing methods), by Alpo Siirja and Olavi E. Nikkila, Tiedotus, Sarja IV, Kemia 62, 40 pp., illus., processed in Finnish with English summary, 1964. Valtion Teknillinen Tutkimuslaitos, Lonnrotinkatu 37, Helsinki, Finland. Discusses sensory testing methods in the production, development, and research work of foodstuffs. In a short survey of the senses and their activity, the possibilities and limits of subjective evaluation are described.

## RADIOACTIVE WASTES:

Radioactive Contamination of the Seas and Oceans, USSR, by K. N. Fedorov and others, JPRS 26, 002, 109 pp., processed, Aug. 20, 1964, \$4. (Translated from the Russian, Radioaktivnaya Zagryaznennost'



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

Morey i Okeanov, Moscow, U.S.S.R., 1964.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### RESEARCH VESSEL:

Articles from Okeanologiya, printed in Russian; Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.:

"A new oceanographic research vessel, Jalanidhi, of Indonesia," by N. A. Skryagin, vol. 4, no. 1, 1964, pp. 186-188.

"A new U. S. Navy research vessel, James M. Gillis, for oceanographic work," by V. G. Samarin, vol. 3, no. 6, 1963, pp. 1123-1125.

Selection of Type of an Oceanographic Research Vessel, by I. A. Stoyanov, JPRS 25068, 8 pp., processed. (Translated from the Russian, Okeanologiya, vol. 4, no. 2, 1964, pp. 342-349.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### RESOURCES:

Possibility of Exploiting the Fishery Resources of the World Ocean, by T. S. Rass, OTS 64-21588, 5 pp., processed, 1964. (Translated from the Russian, Okeanologiya, vol. 3, no. 3, 1963, pp. 495-499.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### ROUGHFISH:

Rótenone for Eradication of Undesirable Fish in Management of Lakes and Ponds, Fisheries Leaflet No. 5, 3 pp., printed, 1960. Division of Fisheries, Illinois Department of Conservation, Rm. 102, State Office Bldg., Springfield, Ill. 62706.

#### SALMON:

"Approach from population dynamics to ratio of salmon falling off gill nets," by Takayuki Doi, article, Bulletin of the Tokai Regional Fisheries Research Laboratory, vol. 34, 1962, pp. 13-18, printed in Japanese. Tokai Regional Fisheries Research Laboratory, Tsukishima, Chuo-ku, Tokyo, Japan.

"Biology of the pink salmon of the White Sea," by F. B. Mukhomediyarov, article, Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii, vol. 1, 1963, pp. 49-52, printed in Russian. Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii, Akademiia Nauk SSSR, Moscow, U.S.S.R.

"A few notes of migration groups by analysis of scale patterns on the pink salmon, Oncorhynchus gorbuscha," by Tetsuo Ogata, article, Bulletin of the Japan Sea Regional Fisheries Research Laboratory, no. 13, 1964, pp. 15-24, printed. Japan Sea Regional Fisheries Research Laboratory, Miigata, Northwest Honshu, Japan.

"An investigation of louvers as a method of guiding juvenile Pacific salmon," by C. P. Ruggles and P. Ryan, article, The Canadian Fish Culturist, issue 33, Nov. 1964, 68 pp., illus., printed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada.

"Materialy o réchnom periode zhizni simy" (Data on the river stage of the salmon Oncorhynchus masu), by M. L. Krykhtin, article, Izvestia Tikhookeanskogo Nauchno-Issledovatel'skogo Instituta Rybnogo Khoziaistva i Okeanografii, vol. 48, 1962, pp. 84-132, printed in Russian. Four Continent Book Corp., Fifth Ave., New York, N. Y. 10010.

"Method of breeding young salmon in Northern Caucasus," by A. E. Tamarin, article, Raboty Rybnokhozyaistvennoi Laboratorii Voronezhskogo Universiteta, vol. 2, 1962, pp. 3-10, printed in Russian. Raboty Rybnokhozyaistvennoi Laboratorii Voronezhskogo Universiteta, Voronezh, U.S.S.R.

Symposium on Pink Salmon, edited by N. J. Wilimowsky, H. R. MacMillan Lectures in Fisheries, 226 pp., illus., printed, 1962. Institute of Fisheries, University of British Columbia, Vancouver 8, B. C., Canada. Contains the text of papers presented and pertinent discussions at a symposium held at the University of British Columbia, Oct. 13-15, 1960. Included are: "The observed fluctuations of pink salmon in British Columbia," by Ferris Neave; "Pink salmon fluctuations in Alaska," by William F. Royce; "Some problems of the pink salmon fisheries in Asian waters," by Kisaburo Taguchi; "Pink salmon population of the Fraser River System," by E. H. Vernon; "Freshwater survival of pink salmon at Sashin Creek, Alaska," by Theodore R. Merrell, Jr.; "Environmental variability and reproduction potentials of pink salmon in British Columbia," by W. P. Wickett; "Relation of stream temperatures to timing of pink salmon escapements in Southeast Alaska," by William J. Sheridan; "Marine factors affecting the survival of Fraser River pink salmon," by Philip Gilhausen; "Marine survival, distribution and migration of pink salmon (Oncorhynchus gorbuscha) off the British Columbia Coast," by J. I. Manzer and M. P. Shepard; and "Observations on pink salmon in the Aleutian Island Area 1956-1960," by Allan C. Hartt. Also included are: "Aspects of the marine biology of Asiatic pink salmon," by Teruo Ishida; "Differentiation of stocks," by Donald D. Worlund and Reynold A. Fredin; "Regulation of the abundance of pink salmon populations," by W. E. Ricker; "A concept of the dynamics of pink salmon populations," by Robert R. Parker; and "The relationship between numbers spawning and numbers returning in Pacific salmon," by W. F. Thompson.

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Legal Aspects of Small Business Use of Cooperative Arrangements, by Stanley F. Hack, Management Research Summary, 2 pp., processed, 1964. Small Business Administration, Washington, D. C. 20416. Many small businesses have been able to lower costs and strengthen their marketing positions by entering into various cooperative arrangements. This report examines statutes and judicial decisions that have established guidelines for the opportunities in and restrictions on such agreements. The Capper-Volstead Act authorizes agricultural producers to form cooperatives for processing, preparing for market, handling, and marketing their products. The Fisheries Act grants similar privileges to fishermen. Activities most frequently challenged under both laws include conspiracies with non-cooperatives, boycotts, attempts to monopolize trade, and mergers.

#### SMELT:

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"Movements of petrale sole, *Eopsetta jordani* (Lockington), tagged off California," by Edgar Allan Best, pp. 23-28, illus.

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Annual Report, 1963-1964, Contributions from Bears Bluff Laboratories No. 41, 10 pp., illus., printed, Jan. 1965. (Reprinted from Report of South Carolina Wildlife Resources Department, Fiscal Year July 1, 1963-June 30, 1964.) Bears Bluff Laboratories, Wadmalaw Island, S. C. Discusses the accomplishments during the year ended June 30, 1964; the study of oysters, plankton, shrimp, finfish, fish kills, and pond cultivation. Also discusses operation of a new fishery research vessel.

#### SPAIN:

"Conclusiones generales de la Comision III--Ordenación y expansión de la pesca e industrias derivadas" (General conclusions of Commission III--Or-

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The following articles are from Industria Conservera, vol. 30, printed in Spanish. Unión de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain:

"La industria conservera y la exportacion" (The canning industry and the export market), by Alevin, no. 302, Aug. 1964, p. 207, illus.

"Operaciones conserveras: las de la sardina y especies afines al arenque" (Canning operations: those of the sardine and species related to herring), no. 304, Oct. 1964, pp. 265-266.

"Ordenacion y expansion de la industria conservera Gallega" (Organization and expansion of the Galician canning industry), by Alevin, no. 305, Nov. 1964, pp. 291-294.

#### SPINY LOBSTER:

The following are from Commonwealth Scientific and Industrial Research Organization, 314 Albert St., East Melbourne C2, Victoria, Australia:

The Southern Crayfish (JASUS LALANDII), by P. Grue, Translation No. 5380, 26 pp., printed. (Translated from the French, Australes et Antarctiques Francaises, no. 10, 1960, pp. 15-40.)

"The spiny lobster, *Jasus lalandei* (H. Milne-Edwards) in South Australia. II--Reproduction," by D. R. Fielder, article, Australian Journal of Marine and Freshwater Research, vol. 15, no. 2, Nov. 1964, pp. 133-144, illus., printed, single copy 10/- (about US\$1.10).

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Control of Bacterial Spoilage of Fish, by H. L. A. Tarr, 5 pp., printed. (Reprinted from Developments in Industrial Microbiology, vol. 5, 1964, pp. 135-139.) Technological Research Laboratory, Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

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#### STERN TRAWLERS:

The following articles are from Construction and Running of Stern-Trawlers, Translation No. 813, printed. (Translated from the German, Hansa-Schiffahrt-



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St. Pierre-Hafen, vol. 98, no. 23, 1961); Marine Laboratory, Department of Agriculture and Fisheries Scotland, P. O. Box 101, Victoria Rd., Torry, Aberdeen, Scotland.:

"Operational experiences with stern trawlers," by J. Guss.

"Stern trawlers and their fishing gear," by H. Hein-

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#### ST. PETERSBURG:

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binete de Estudos das Pescas, R. S. Bento, 644, 4º Esq., Lisbon, Portugal.

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"Contribution a l'etude de l'adaptation des Tilapia (Pisces, Cichlidae) a la vie en milieu mal oxygene" (A contribution to the study of the adaptation of the Tilapia--Pisces, Cichlidae--to life in a poorly oxygenated environment), by J. Dusart, article, Hydrobiologia, vol. 21, nos. 3/4, 1963, pp. 328-341, printed in French. Hydrobiologia, Uitgeverij Dr. W. Junk, The Hague, Netherlands.

"Tilapia in the South Pacific," by L. C. Devambe, article, South Pacific Bulletin, vol. 14, no. 4, Oct. 1964, pp. 27-28, 52, illus., printed, single copy 30 cents. South Pacific Commission Publications Bureau, G. P. O. Box 5254, Sydney, Australia. Since 1954, various Tilapia species have been introduced into most of the South Pacific islands with notable success. This small fresh-water fish is unusually hardy, adaptable to widely different environments, a most prolific breeder, and valuable in mosquito control. The Tilapia is well suited to the role it plays in the South Pacific--to populate those waters which previously were very often empty and sometimes rather poorly equipped to support aquatic life--and to do this in the absence both of specialized staff and fish-culture establishments, according to the author.

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The Biology of the Yellowfin Tuna, THUNNUS ALBACARES (Bonnaterre), in the Gulf of Guinea, by Gilbert W. Bane, Jr., Order No. 64-3702, 444 pp., 1963, microfilm \$5.65; Xerography \$20.05. University Microfilms, Inc., University of Michigan, 313 N. 1st St., Ann Arbor, Mich.

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Prospección y pesca de atunes en las costas de Provenza, Córcega y golfo de Génova" (Exploration and fishery for tuna along the coasts of Provence and Corsica and in the Gulf of Genoa), by Pierre Gougelet, article, Puntal, vol. 11, no. 127, Oct. 1964, pp. 14-17, illus., printed in Spanish, single copy 12 ptas. (about 20 U. S. cents). Puntal, Apartado de Correos 316, Alicante, Spain.

Ships for Tuna Fishing (Statki do Polowow Tunczyka), by Jacek Forembki and Bohdan Pradzynski, OTS 63-11394, 11 pp., illus., processed, 1964. (Translated from the Polish, Budownictwo Okretowe, no. 3, 1961, pp. 90-92.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

## TURKEY:

Balik ve Balıkcılık (Fish and Fishery), vol. 12, no. 12, Dec. 1964, 32 pp., illus., printed in Turkish with English table of contents. Et ve Balik Kurumu G. M., Balıkcılık Mudurlugu, Besiktas, Istanbul, Turkey. Contains, among others, articles on: "Production of black caviar in Turkey and its problem (Part I)," by Cevdet Aygun; "Technological developments in the field of fish flour (Part I)," by Hikmet Akgunes; and "Synthetic fibres in the fishing industry (Part I)," by Necla Gurturk.

## TURTLES:

"La proteccion de las tortugas marinas" (The protection of marine turtles), by Alberto Alvarez-Pinzon, article, Iberica, vol. 42, no. 28, Oct. 1964, pp. 376-378, illus., printed in Spanish, single copy 18 ptas. (about 30 U. S. cents). Iberica, Palau, 3, Apartado 759, Barcelona-2, Spain.

## UNITED KINGDOM:

Directory and Equipment Guide, 1965, by Arthur J. Heighway and E. Melville Dougall, 184 pp., illus.,

printed, £1 12s. (about US\$4.50). Fishing News, 110 Fleet St., London EC4, England. This is a most comprehensive directory of the British fishery and allied industries of interest to all those concerned with the United Kingdom's fisheries and industry. It contains lists of fishing vessels, owners and managers, individual fleets, fishing craft in all United Kingdom ports and buildiers of fishing vessels; propulsion, transmission, and steering equipment suppliers and manufacturers; electronics and radio equipment suppliers and manufacturers; chandlery and lifesaving equipment suppliers and manufacturers; catching and hauling equipment suppliers and manufacturers; and marketing and processing equipment manufacturers. It also includes lists of fishery officials, government organizations, and trade associations; and an alphabetical index of all suppliers and manufacturers. A complete change in format is evident in this fifth edition. Each section has an introductory article with information on the latest trends in that segment of the fishing industry. Included are full details of vital parts of important vessels launched or completed during the past 12 months; and a list of the abbreviations used for official fishery agencies.

## U.S.S.R.:

"Fishing industry of the national reservoirs in the Voronezh region in 1958-60," by A. V. Fedorov and E. V. Afonyushkina, article, Raboty Rybnokhozyaistvennoi Laboratorii Voronezhskogo Universiteta, vol. 2, 1962, pp. 20-41, printed in Russian. Raboty Rybnokhozyaistvennoi Laboratorii Voronezhskogo Universiteta, Voronezh, U.S.S.R.

"La industria de la pesca en Rusia" (The fishing industry in Russia), article, Informacion Conservera, vol. 12, no. 129, Sept. 1964, pp. 363-364, printed in Spanish, single copy 30 ptas. (about 50 U. S. cents). Informacion Conservera, Colon, 62, Valencia, Spain.

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"Red flag over the seven seas," by Hanson W. Baldwin, article, The Atlantic Monthly, vol. 214, no. 3, Sept. 1964, pp. 37-43, printed, single copy 75 cents. The Atlantic Monthly, 8 Arlington St., Boston, Mass. 02116. Contains a section on the Soviet fishing fleets.

The following are available from Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.:

General Studies on Fishing Industry, USSR, TT64-3185, 71 pp., illus., processed, July 24, 1964, \$3. (Translated from the Russian, Rybnoe Khoziaistvo, no. 4, 1964.)

"A possible method of controlling the food supply of fish in Taganrog Gulf in the Sea of Azov," by A. F. Gun'ko, article, Translation of Doklady Biological Sciences Sections, vol. 127, nos. 1-6, pp. 654-666, printed. (Translated from the Russian, Doklady Akademii Nauk SSSR, vol. 127, no. 4, 1959, pp. 900-902.)



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## VENEZUELA:

Establishing a Business in Venezuela, by William F. Rich, OBR 64-141, 20 pp., printed, Dec. 1964, 11 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.) Economic resources, rapid economic and population growth, economic stability, strong currency, freedom to remit capital and profits abroad, and opportunity to world markets are among the factors tending to attract investors to Venezuela. The report contains information on Venezuela's investment climate; legislation governing investment; organization of business; and patent, trademark, and copyright protection. Also discusses the employment situation, income and other taxes, availability of local, basic economic facilities, and investment information services.

## VESSELS:

Mechanization of Small Fishing Craft, edited by John H. Bess, 112 pp., illus., printed, Arthur J. Heighway Publications Ltd., 110 Fleet St., London EC4, England. Much of the information in this book is based upon papers presented at a symposium on the mechanization of fishing craft held in Seoul, Korea, in 1962, and organized by the Food and Agriculture Organization of the United Nations and its Indo-Pacific Fisheries Council. Section 1, Installation and operation of outboard motors, with a foreword by H. D. Finn, includes articles on: "The impact of outboard mechanization of developing fisheries," by Jan-Olof Traung; "Development of mechanized fleets in Indo-Pacific fisheries," by K. Chidambaram; "Outboards in tropical fisheries," by John Burgess; and "Overcoming problems on boat design, servicing and fuel costs," by Jan-Olof Traung. Section 2, Inboard engines in open craft, presents articles on: "Engines in the transition to mechanized vessels," by Erik Gurtner; "Design considerations. I; II"; "Open fishing craft with inboard engines," by Jan-Olof Traung; "Selection of marine engines under 50 h. p.," by E. Kvaran; and "Engine beds for small fishing craft," by Erik Estlander. Section 3, Inboard engines in decked craft, includes these articles: "Problems with small decked fishing craft," by Jan-Olof Traung; "Development in Hong Kong," by W. D. Orloff; "Transition in Japan and Korea," by S. Takahashi and Z. G. Kim; and "Efficient propeller selection," by Jan-Olof Traung. Section 4, Problems of engine service and maintenance, contains these articles: "Seven conditions to ensure smooth running of engines," by E. Kvaran; "Fuels and lubricants for small engines," by John Burgess; "Problems of servicing in less developed countries," by L. Stenstrom; and "Some parameters for plotting fishing effort," by Jan-Olof Traung.

## VIETNAM:

How to increase the catch of salt-water fish, by H. Xuan Hai, article, Selected Articles from Fishing Industry in North Viet Nam, JPRS 655-D, 1964, printed. (Translated from the Vietnamese, by H. Lam (North Viet Nam), no. 1, Jan. 1959, pp. 1-2.) Photoduplication Service, Library of Congress, Washington, D. C. 20540.

## VITAMINS:

A Chemical Method for the Estimation of Vitamin D in Fish Oils, by I. N. Garkin and V. N. Bukin, 60-13713, 10 pp., processed, microfilm \$2.40, photostat \$3.30. (Translated from the Russian, *Biokhimiya*, vol. 16, no. 2, 1951, pp. 176-185.) Photoduplication Service, Library of Congress, Washington, D. C. 20540.

The following abstracts are from *Chemical Abstracts*; American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.:

"The molecular distillation of Vitamin A from the fats of marine animals," by S. I. Maksimov, vol. 59, Nov. 25, 1963, Abstract No. 13110c.

"Preparation of 'Ketone 250' from the Vitamin D of tunny fish liver," by Y. Raoul and N. Le Boulch, vol. 58, May 27, 1963, Abstract No. 11612f.

"Utilization of oils and fats from viscera of aquatic animals. V--Industrial adaptability of the esterification methods for concentrating Vitamin A," by Hiroshi Sone, vol. 60, April 27, 1964, Abstract No. 10479c.

## WHALE MEAT:

"Preservation of whale meat for feeding purposes," by L. Sheml'kova and V. Kulyasova, article, *Rybnaya Promyshlennost Dal'nego Vostoka*, no. 1, 1963, p. 16, printed in Russian. *Rybnaya Promyshlennost Dal'nego Vostoka*, Vladivostok, U.S.S.R.

## WHALES:

"Progress report on sperm whale research in the southeast Pacific Ocean," by Robert Clarke, Anelio Aguayo L., and Obla Paliza G., article, *Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette)*, vol. 53, no. II, Nov. 1964, pp. 297-302, illus., printed. Hvalfangerforeningen, Sandefjord, Norway.

The following reports, reprinted from *Tuatara*, vol. 12, no. 2, July 1964, are available from the Fisheries Laboratory, Marine Department, Wellington, New Zealand:

Recent Observations in New Zealand Waters on Some Aspects of Behaviour of the Sperm Whale (PHYSETER MACROCEPHALUS), by D. E. Gaskin, No. 66, pp. 106-114, illus., printed.

Return of the Southern Right Whale (EUBALEANA AUSTRALIS Desm.) to New Zealand Waters, 1963, by D. E. Gaskin, No. 67, pp. 115-118, illus., printed.

## WHALING:

Australian Whaling, 1963, Catch Results and Research, by J. L. Bannister, Report 38, 34 pp., illus., processed, 1964. Marine Laboratory, Division of Fisheries and Oceanography, Commonwealth Scientific and Industrial Research Organization, Cronulla, Sydney, Australia. At Albany, Australia, the sperm whale catch per unit of effort during 1963 was less than in either of the two previous years. An analysis of results from the first 13 months of an aerial survey off the Western Australian coast shows that sperm whales are found farther offshore on the west coast while being concentrated near the continental shelf on the southwest coast. Provisional estimates of the density of sightings show a peak of abundance in November.



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ber. Catch and effort data for the small number of humpback whales caught during 1963 show that this species continued to decline. The catchable stock is estimated at 568 humpbacks, of which not more than 261 could be adult. No further catches of humpbacks are expected for some years because of the recent international agreement prohibiting their capture in the southern hemisphere. This report includes a number of statistical tables showing catch and effort, and lengths of sperm and humpback whales landed by Australian vessels, 1963.

#### WHALING:

"Effects of various catch quotas," article, Norsk Hvalfangst-Tidende, vol. 53, no. 12, Dec. 1964, pp. 321-323, printed. Hvalfangerforeningen, Sandefjord, Norway.

#### WHITEFISH:

"Acclimatization of the whitefish (Coregonus peled) in small Karelian lakes," by Z. A. Gorbunova, article, Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii, vol. 1, 1963, pp. 181-186, printed in Russian, Problemy Ispol'zovaniya Promyslovykh Resursov Belogo Morya i Vnutrennykh Vodoemov Karelii, Akademiia Nauk SSSR, Moscow, U.S.S.R.

"Promyshlennoe vyrashchivanie molodi sigovykh ryb v Belorussii" (Commercial raising of young whitefish in Belorussia), by A. L. Shteinfel'd, article, Referativnii Zhurnal-Biologiya, 1963, Abstract No. 17159, printed in Russian, Akademiia Nauk SSSR, Institut Nauchnoi-Informatsii, Moscow, U.S.S.R.



#### CORRECTION

The December 1964 issue, page 157, showed that the report, Postwar Expansion of Russia's Fishing Industry, was available from the U. S. Government Printing Office. We now find that the report may be obtained only from the Committee on Commerce, United States Senate, Washington, D. C., and distribution is limited.



#### SUBJECT INDEXES FOR COMMERCIAL FISHERIES REVIEW

The subject index for Vol. 23 (1961) of Commercial Fisheries Review was issued and mailed to those on the mailing list for the Review. The index for Vol. 25 (1963) is in press.

Subject indexes for Vol. 19 (1957), Vol. 20 (1958), Vol. 21 (1959), Vol. 22 (1960), Vol. 24 (1962), and Vol. 26 (1964) have not been issued yet. We hope to issue indexes for those volumes in the near future.



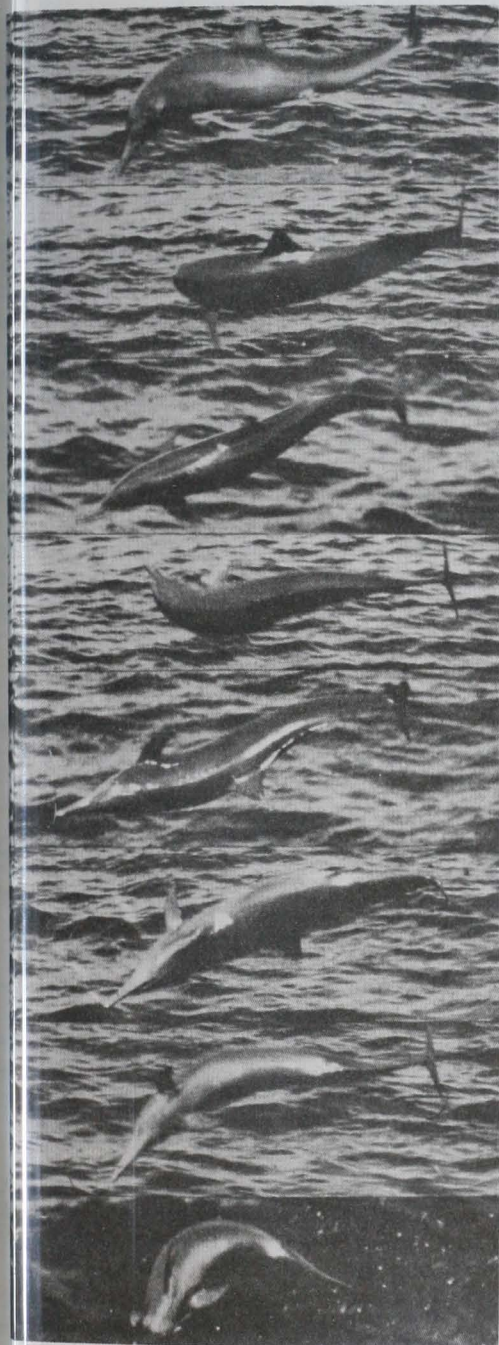


### GYRATIONS OF SPINNER PORPOISE FILMED AS AID TO MARINE-ANIMAL BEHAVIOR STUDIES

Scientists of the U. S. Bureau of Commercial Fisheries' eastern Pacific tuna behavior program at La Jolla, Calif., have chalked up an interesting "first" in the field of marine-animal behavior--a documentary motion picture film of the spinning behavior of the spinner porpoise (*Stenella microps* Gray). This porpoise, or as some authorities prefer to call it, dolphin, was originally represented in the world's collections by a single skull from the Islas Tres Marias near the mouth of the Gulf of California, and was thought to be a rare species until Bureau scientists sent several specimens to the U. S. National Museum for identification. A description of the spinning jumps made by the porpoise was received with skepticism by several cetacean experts (although known to area fishermen), who were unaware of such behavior and thought it might be an optical illusion caused by a rotary motion of the tail.

The film was taken to substantiate observations made by the Bureau biologists. It was shown at the First International Symposium on Cetaceans held in Washington, D. C., in August 1963. As a result of that showing, requests for copies of the film have been received from several foreign scientists including a Dutch scientist in the Netherlands who is an international authority on cetaceans and author of the book Whales.

Two types of behavior are demonstrated in the film. The first is a combination of forward and upward motions necessary to bring the porpoise's blowhole clear of the water. As swimming speed increases, the amount of body exposed increases until, at moderate speeds, the entire animal is out of the water. The second type of jumping behavior differs from the first in that the angle at which the porpoise leaves the water is usually much greater, the duration of the jump is increased many times, and the animal rotates its body rapidly before it re-enters the water, head first. Often the animal does not clear the water completely and the spinning occurs with the tail submerged. This porpoise also may make several spinning jumps in succession, rotating in a clockwise or counterclockwise direction. The cause of that behavior is not known. Remoras or shark suckers frequently are seen attached to swimming porpoises and at first it was thought the spinning was an attempt to dislodge them; however, remoras are not attached to all spinning porpoises. Courtship display has been rejected as a possible cause since spinning has been observed in immature animals.



Figures showing spinning behavior of the porpoise.

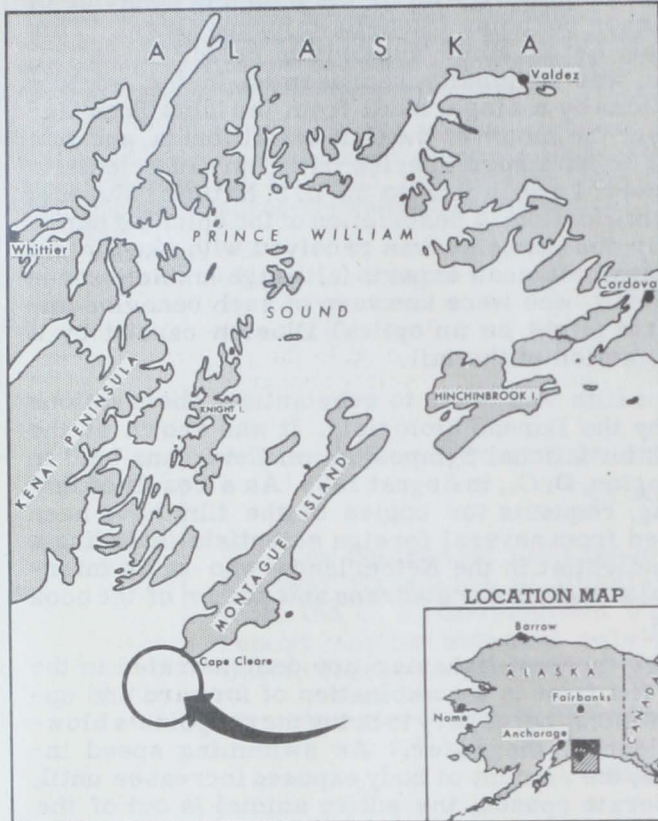
The spinner porpoise is often associated with schools of yellowfin tuna in the eastern Pacific Ocean. In one instance, a group of about 400 porpoises accompanied a school of tuna estimated at 200 tons. This association has led to a study on the behavior and ecology of porpoises in an effort to widen understanding of the yellowfin tuna resource, which is the mainstay of the United States Pacific tuna fleet.



## ALASKAN QUAKE CAUSED HISTORY'S GREATEST UPLIFT

The Good Friday (March 1964) earthquake in Alaska was so strong that it caused the greatest uplift of land ever recorded in history, a rise of more than 50 feet in the ocean

floor of the Gulf of Alaska, the Director of the Coast and Geodetic Survey (C&GS), U. S. Department of Commerce, announced November 20, 1964.



A hydrographic survey completed during the summer 1964 by the Coast and Geodetic ship Surveyor disclosed that a large area of the sea floor was uplifted in excess of 30 feet with a maximum rise of more than 50 feet in three areas. This was determined by comparison with a similar C&GS survey in 1927.

The sharp rise in the ocean floor took place in the area between Kodiak and Montague Islands, not far from Prince William Sound, where the March 27 earthquake was centered. The disaster killed 114 persons and caused an estimated \$750 million in damage.

The uplift in the ocean floor resulting from the earthquake was considerably greater than the maximum rise of 31.5 feet previously reported for Cape Cleare, Montague Island. The greatest uplift in history previously reported was 47 $\frac{1}{3}$  feet at Bancas Point in Disenchantment Bay, Alaska, following the 1899 Yakutat Bay quake.

Still other studies conducted by the C&GS following the March 27 earthquake revealed:

1. That the earth shifted horizontally 15 to 20 feet between Montague Island and Lattouche Island, according to a survey made by the C&GS ship Hodgson. Comparison with observations made in 1933 by the scientific agency revealed that the distance between fixed points on the two islands decreased by 15 to 20 feet as a result of the quake.
2. That along a valley on the Kenai Peninsula the mountains moved an average of five feet. This was ascertained by triangulation parties, which determine horizontal positions on the earth.

Leveling parties of the Coast and Geodetic Survey also checked vertical displacement of the earth in the same region. They found that the earthquake caused the earth to drop in the 400-mile area between Valdez and Seward. The subsidence ranged from 3.2 feet at Seward to 5.6 feet at Portage.



## FISH MAKES MAJOR CONTRIBUTION TO NEW YORK CITY'S "ANTI-CORONARY CLUB" DIET

New York City's "Anti-Coronary Club" since 1957 has had as its objective the development of a practical, safe, and effective dietary approach to the prevention of coronary heart disease affecting western civilization, according to Dr. George Christakis, Director of Nutrition, New York City Board of Health. What follows is in part an address given by the Director to the Newspaper Food Editors Conference, New York City, October 5, 1964. The meeting was sponsored by the Fish'n Seafood Promotions Division of the National Fisheries Institute.

The New York City Health Department center on the east side of mid-town Manhattan is where the members of the "club" are interviewed, given an orientation lecture, then weighed and given a very complete physical examination, including laboratory tests, X-rays, and electrocardiograms. They are given an intense dietary instruction by the Bureau of Nutrition's public health nutritionists; their progress then monitored by a panel of physicians every 5 weeks, at which time a serum cholesterol level is taken.

The cast of characters in this drama of human experimentation are 1,200 men, New Yorkers ranging in age from 40 to 59 and mostly in managerial and professional occupations. Approximately 800 of them selflessly attend the "Anti-Coronary Club" during working hours and voluntarily disavow their usual diet habits in order to embark on a new nutritional way of life. With a twinkle of optimism, this new way of eating was nicknamed "The Prudent Diet." The remaining 400 men in the project are under observation while keeping to their usual diet habits; they serve as the "Anti-Coronary Club's" control group.

The important events in the scientific world which set the scene for the advent of the "Anti-Coronary Club" were:

1. The recognition that coronary heart disease is the number one killer of men in the United States.
2. Scientists studying the relationship between diet and coronary heart disease in many areas of the world found that the amount of coronary heart disease and the level of serum cholesterol of a population went hand-in-hand. The higher the level of cholesterol, the higher the death-rate from coronary heart disease; the lower the level of cholesterol the lower the heart attack death rate was in that population.
3. The discovery that the amount and type of fat in the diet could strongly influence the level of serum cholesterol. The more saturated fat in the diet, the higher the serum cholesterol level tended to rise; the less saturated fat, or the more polyunsaturated fat in the diet, the lower the serum cholesterol level dropped. Thus, saturated and polyunsaturated fats were found to have opposite effects on the serum cholesterol level.
4. The breakthrough by the U. S. Public Health Service-sponsored Framingham Study which identified the high serum cholesterol level as a major risk factor associated with coronary heart disease as this disease developed in Framingham, Mass., townspeople.

Against this back-drop of scientific advances, the ultimate task of the "Anti-Coronary Club" was to test the idea that a diet relatively low in saturated fat and high in polyunsaturated fat could lower serum cholesterol and thereby perhaps prevent coronary heart disease.

What is the "Anti-Coronary Club's" diet? The diet is a varied one with beef, fish, poultry, and veal prominently featured on the menu plan. Saturated fat intake is decreased by an avoidance of more than 10 ounces of beef, mutton, or pork per week. Butter, ice cream, and hard cheeses are replaced respectively by margarines rich in polyunsaturated fat, sherbets, and cheeses low in saturated fats. Ricotta, desserts and pastries made with hydrogenated shortening are replaced by baked goods low in saturated fat content and made with polyunsaturated shortenings.

(Continued on next page)



A major contribution to the diet is made by fish, as fish are rich sources of polyunsaturated fats. At least 5 meals per week contain fish or other sea foods. Beef may be consumed 4 meals per week, and the remaining meals are comprised of poultry and veal. Vegetables and fruits also share a prominent place in the diet pattern. Cereals, vegetable oil, and nuts are also included. Eggs are limited to 4 per week.

The principles upon which the diet is based are two: (1) moderation in quantity of dietary fat, (2) balance of the types of fat.

The diet lowers the total number of daily calories derived from fat from about 42 percent as is present in the usual American diet, to 32 percent. It furthermore aims to balance the amounts of the three types of fat found in most foods. About two-thirds of the fat usually consumed is saturated. In the Prudent Diet this is reduced to one-third. Thus there are approximately equal numbers of calories contributed by the three types of fat: saturated, mono-unsaturated, and polyunsaturated. Saturated fats are mostly found in beef and dairy products. Mono-unsaturated fats are present in olive oil and margarines. Polyunsaturated fats are mostly found in fish, vegetable oils, and certain nuts...

What are the results of the "Anti-Coronary Club" to date? It has been demonstrated that members find the study diet palatable and acceptable enough to contrive consuming it for more than seven years. Moreover the diet has been effective in lowering serum cholesterol and keeping it low over an extended period of time.

In order to assess the nutritional adequacy of the diet in relation to vitamins A and E, recent investigations have affirmed normal serum levels of these vitamins in a sample of Anti-Coronary members. The effect of the study diet on serum triglyceride levels was also measured since this blood fat factor may also be related to coronary heart disease incidence. While the diet lowered cholesterol, it was found not to raise the triglyceride level.

Another research problem which faced us at the "Anti-Coronary Club" was finding a way to prove that the Club's members were actually consuming the foods they were taught to eat, and which they said they ate. We found that by taking a sample of their fat tissue and analyzing it chemically for individual fatty acids, we could trace the actual changes in composition of their own fat as they continued to consume the polyunsaturated fatty acids predominantly found in fish. Thus, at least as certain fish fats are concerned, "man is what he eats."

Observations suggest that the members of the "Club" appear to be having fewer heart attacks than would be expected.

But why does 30 to 40 percent of our adult male population have levels of serum cholesterol high enough to increase their risk of developing coronary heart disease? Why do our young men have rapidly rising levels of serum cholesterol from age 18 to 27? Might not these high levels of serum cholesterol reflect overintake of foods containing saturated fats, or underconsumption of foods rich in polyunsaturated fats? Or both? Other factors may also contribute to the high levels of serum cholesterol observed in American men, such as lack of exercise and psychological stress. However, the importance of diet in influencing the serum cholesterol level is so well documented as to urge that we take a critical look at how we, as a people, are eating. There is no nation that can surpass the advances being made by our food technologists. Nor any land that is blessed by a more bountiful national harvest. Much knowledge supplied by the nutrition sciences has already been incorporated in the American diet; this must not be violated. But the virtues of our present diet pattern should not be extolled so loudly that it is considered insusceptible to improvement.

Nutritional abundance should not be mistaken for nutritional excellence. Though faced with thousands of different food items in the supermarket which compete for her attention, the housewife must prudently choose the foods that will comprise a truly balanced diet. These include meats, fish, dairy products, vegetables, fruits, cereals, and oils. No food group, or groups, should be overconsumed to the exclusion of others. The housewife also has the responsibility of preparing these foods so attractively and deliciously that all food groups will meet with enthusiastic acceptance...