



# 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:

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

Number	Title
CFS-3247	- Shrimp Landings, 1962 Annual Summary (Revised), 43 pp.
CFS-3563	- Gulf Coast Shrimp Data, January 1964, 17 pp.
CFS-3566	- Gulf Coast Shrimp Data, March 1964, 17 pp.
CFS-3583	- Texas Landings, March 1964, 2 pp.
CFS-3584	- Shrimp Landings, April 1964, 5 pp.
CFS-3586	- Gulf Coast Shrimp Data, April 1964, 19 pp.
CFS-3589	- Texas Landings, April 1964, 2 pp.
CFS-3590	- New England Fisheries, 1963 Annual Summary, 10 pp.
CFS-3604	- Texas Landings, May 1964, 2 pp.
CFS-3607	- Virginia Landings, June 1964, 4 pp.
CFS-3613	- Alabama Landings, April 1964, 3 pp.
CFS-3614	- Alabama Landings, May 1964, 3 pp.
CFS-3617	- Texas Landings, June 1964, 2 pp.
CFS-3618	- Maryland Landings, July 1964, 4 pp.
CFS-3621	- Georgia Landings, May 1964, 3 pp.
CFS-3622	- Georgia Landings, June 1964, 3 pp.
CFS-3623	- Georgia Landings, July 1964, 3 pp.
CFS-3625	- Texas Landings, July 1964, 2 pp.
CFS-3626	- New York Landings, July 1964, 5 pp.
CFS-3628	- South Carolina Landings, March 1964, 2 pp.
CFS-3629	- South Carolina Landings, April 1964, 2 pp.
CFS-3630	- South Carolina Landings, May 1964, 2 pp.
CFS-3631	- South Carolina Landings, June 1964, 3 pp.
CFS-3632	- South Carolina Landings, July 1964, 3 pp.
CFS-3634	- Florida Landings, July 1964, 8 pp.
CFS-3635	- Louisiana Landings, July 1964, 3 pp.
CFS-3636	- Shrimp Landings, June 1964, 5 pp.
CFS-3637	- Gulf Coast Shrimp Data, June 1964, 25 pp.
CFS-3638	- Maine Landings, July 1964, 4 pp.
CFS-3639	- North Carolina Landings, August 1964, 4 pp.
CFS-3641	- Rhode Island Landings, May 1964, 3 pp.
CFS-3642	- Georgia Landings, August 1964, 3 pp.
CFS-3643	- South Carolina Landings, August 1964, 3 pp.
CFS-3644	- Maryland Landings, August 1964, 4 pp.

CFS-3645 - New Jersey Landings, July 1964, 3 pp.  
CFS-3647 - Florida Landings, August 1964, 8 pp.  
CFS-3649 - Fish Meal and Oil, August 1964, 2 pp.  
CFS-3656 - Shrimp Landings, July 1964, 5 pp.

Sep. No. 714 - Soviet Far East Fisheries Expansion.

Sep. No. 715 - Overall View of Soviet Fisheries in 1963, with Emphasis on Activities off United States Coasts.

Sep. No. 716 - Supply, Sustained Yield, and Management of the Maine Lobster Resource.

Sep. No. 717 - Trawling Results of the R/V Anton Bruun in the Bay of Bengal and Arabian Sea.

Sep. No. 718 - Crab Industry of Chesapeake Bay and the South--An Industry in Transition.

Sep. No. 719 - Review of the Movement of Albacore Tuna Off the Pacific Coast in 1963.

Sep. No. 720 - (Salmon) Abernathy Spawning Channel Proves Effective for Reproduction of Chum Salmon.

Sep. No. 721 - Design and Operation of a Tray Rack for the Study of Oysters.

FL-46 - Dealers in Trout and Pondfishes, 77 pp., revised September 1964.

FL-190 - Turtle Trapping, 8 pp., illus., revised May 1964.

FL-411 - Care of Tropical Aquarium Fishes, 4 pp., revised May 1964.

FL-560 - Author Index of Publications, Addresses, and Translations - 1962, Bureau of Commercial Fisheries, Branches of Economics and Technology, by F. Bruce Sanford, Kathryn L. Osterhaug, and Helen E. Plastino, 10 pp., April 1964.

FL-563 - Pacific Salmon, by Clifford J. Burner, 12 pp., illus., September 1964. Discusses the five species of Pacific salmon--Oncorhynchus gorbuscha, O. tshawytscha, O. nerka, O. kisutch, and O. keta; general life history; food; migration; commercial importance; water problems; and research on salmon. Included are statistical tables showing data for 5 species of Pacific salmon occurring on the west coast of North America; commercial catch of salmon in Pacific Coast States, 1950-60; and value of commercial catch of salmon in Pacific Coast States, 1950-60.

- FL-569 - The True Pikes, by Ernest G. Karvelis, 11 pp., illus., September 1964. Discusses scientific names of pikes, their common names, physical characteristics, occurrence, artificial propagation, and key to identification. Also describes in detail the characteristics of the muskellunge, northern pike, chain pickerel, grass pickerel, and redfin pickerel.
- FL-573 - Graduate Educational Grants in Aquatic Sciences for the Academic Year 1965-66, 4 pp., illus., October 1964.
- SSR-Fish. No. 467 - Annual Fish Passage Report - Rock Island Dam, Columbia River, Washington, 1962, by Paul D. Zimmer and John H. Broughton, 29 pp., illus., August 1964.
- SSR-Fish. No. 468 - Statistical Records and Computations on Red Salmon (*Oncorhynchus nerka*) Runs in the Nushagak District, Bristol Bay, Alaska, 1946-59, by Ole A. Mathisen, Robert L. Burgner, and Ted S. Y. Koo, 34 pp., illus., June 1963.
- SSR-Fish. No. 479 - Age and Size Composition of the 1960 Menhaden Catch Along the U. S. Atlantic Coast, with a Brief Review of the Commercial Fishery, by William R. Nicholson and Joseph R. Higham, Jr., 44 pp., illus., August 1964.
- SSR-Fish. No. 484 - Field Techniques for Staining-Recapture Experiments with Commercial Shrimp, by T. J. Costello, 15 pp., illus., August 1964.
- SSR-Fish. No. 485 - Disappearance of Dead Pink Salmon Eggs and Larvae from Sashin Creek, Baranof Island, Alaska, by William J. McNeil, Ralph A. Wells, and David C. Brickell, 15 pp., illus., August 1964.
- Annual Report of the Bureau of Commercial Fisheries Technological Laboratory, Seattle, Washington, Calendar Year 1962, by Patricia S. Terao, Circular 180, 15 pp., illus., September 1964. The Technological Laboratory of the Pacific Region, Bureau of Commercial Fisheries, one of six such laboratories, began its research activities on May 2, 1933. The laboratory carries out research on the preservation and utilization of fish and shellfish, the chemical properties of constituents, and the application of research findings to new and improved fishery products. By preparing technical bulletins and answering inquiries, the laboratory also provides the fishing industry and the general public with information on fishery products. Currently three major research programs are under way. The first program aims at widening markets for fish oils, and consists of organic chemical investigations of the properties and reactions of fish oils, of their derivatives, and of industrial evaluation of potential uses for these products. The second, in cooperation with the Atomic Energy Commission, concerns the irradiation pasteurization of several species of fish as a means of extending the storage life of iced fish. The third deals with improving the quality of fresh and frozen fish by developing standards of quality. Studies under the latter program at present focus attention on grading methods for judging the quality of halibut as landed by fishing vessels. Several smaller projects include experiments on shellfish processing, investigation of species of fish not utilized, and studies on fish spoilage.

The Bureau of Commercial Fisheries Biological Laboratory, Oxford, Maryland; Programs and Perspectives, Circular 200, 52 pp., illus., October 1964. Shellfish research in the Middle Atlantic States was materially advanced in 1960 when the Bureau of Commercial Fisheries Biological Laboratory at Oxford, Md., was established on the eastern shore of Chesapeake Bay. Committed to increased understanding of shellfish biology, and with particular interest in factors influencing survival, growth, and reproduction of shellfish, the laboratory joined a group of state and university research units involved with comparable problems. This series of papers has been prepared by biologists concerned with the laboratory's activities. Included are: "A brief history of Federal shellfish investigations in Chesapeake Bay," by James B. Engle; "The Bureau of Commercial Fisheries Biological Laboratory at Oxford, present and future," by Carl J. Sindermann; "Environmental features of the laboratory site; the Tred Avon River," by Robert W. Hanks; "Natural and artificial pond culture of oysters," by William N. Shaw; "Studies of oyster microparasites," by Aaron Rosenfield; and "Progress in surf clam biological research," by Arthur S. Merrill and John R. Webster.

The Commercial Fisheries of the Gulf and South Atlantic Region and Their Needs, Circular 181, 42 pp., illus., September 1964. Discusses in detail the status of the commercial fishery resources of the Region, their utilization, and their needs. Summarizes the programs that should be continued or undertaken within the Region to strengthen the fishing industry and point the way to full utilization of the resources of the Gulf and South Atlantic waters. Many of the needs will be met by industry without assistance. Other needs will be met by cooperative industry-Government action; and still others, particularly in the field of biological research to provide the basis for resource management, must be met through Government efforts--both State and Federal. Coordination and integration of those separate activities are possible through the Gulf States Marine Fisheries Commission and the Atlantic States Marine Fisheries Commission, and their standing committees.

Fisheries of the World, by Sidney Shapiro, 17 pp., printed. (Reprinted from Farmer's World, The Yearbook of Agriculture 1964, U. S. Department of Agriculture, pp. 161-177.) Some experts on marine resources believe that about 90 percent of the ocean's productivity is unused and that utilization eventually can be increased at least fivefold without endangering aquatic stocks, according to the report. The global catch was 20 million metric tons in 1950 and nearly 45 million in 1962. It may reach 70 million by 1980. The report discusses types of fisheries, methods of capture, utilization of the world's catches, international trade in fishery products, United States participation in 9 international fisheries conventions, United States aid programs to foreign fisheries, oceanographic research, and the First Law of the Sea Conference in Geneva in 1958.

Improving the Quality of Whiting, by John A. Peters, Edward H. Cohen, and Enrico E. Aliberte, Circular 175, 17 pp., illus., July 1964. In any food industry, quality is a large factor in price; and price is important in profits. At present, the whiting industry is in an unfavorable economic position. This report suggests how the industry can strengthen itself by



improving handling methods both on the vessel and at the shore plant. These changes will increase not only the efficiency of operations, but also the quality of the products.

Investigations in Fish Control: 1--Laboratories and Methods for Screening Fish-Control Chemicals; 2--Preliminary Observations on the Toxicity of Antimycin A to Fish and Other Aquatic Animals, by Robert E. Lennon, Charles R. Walker, and Bernard L. Berger, Circular 185, 40 pp., illus., June 1964.

Pesticide-Wildlife Studies, 1963: A Review of Fish and Wildlife Service Investigations during the Calendar Year, Circular 199, 130 pp., September 1964.

Selected List of Fish and Wildlife Publications for Conservation Education, 5 pp. These publications are available without charge, in limited quantities, to teachers for classroom use.

Sharks of the Genus CARCHARHINUS Associated with the Tuna Fishery in the Eastern Tropical Pacific Ocean, by Susumu Kato, Circular 172, 25 pp., illus., June 1964.

"Technological investigations of pond-reared fish, Part 1--Product development from buffalofish," by Leo J. Sullivan and Harry L. Seagran, article, Fishery Industrial Research, vol. 2, no. 2, December 1963, pp. 29-42, 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-3	Legislative Actions Affecting Commercial Fisheries, 88th Congress, 1st Session 1963 and 2nd Session 1964, 38 pp.
MNL-63	United Arab Republic Fisheries, 1963 and 1964, 6 pp.
MNL-80	Brazil's Fishing Industry, 1963, 14 pp.

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE ICHTHYOLOGICAL LABORATORY, BUREAU OF COMMERCIAL FISHERIES, FISH AND WILDLIFE SERVICE, U.S. NATIONAL MUSEUM, WASHINGTON, D.C. 20560.

Families of Fishes New to the Antarctic. Communiqué 3--Pelagic Young of Flatfish (Pisces, Bothidae) Off the Antarctic Coast, by A. P. Anriashv, Translation 21, 7 pp., processed. (Translated from the Russian, Zoologicheskij Zhurnal, vol. 39, no. 7, 1960, pp. 1056-1061.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE MARINE MAMMAL BIOLOGICAL LABORATORY, U.S. FISH AND WILDLIFE SERVICE, SAND POINT NAVAL AIR STATION, SEATTLE, WASH.

Present Status and Problems in Systematics of Pinnipeds, by K. K. Chapsky, 31 pp., processed. (Translated from the Russian, Trudy Soveshchaniy Ikhtiologicheskoi Komissii, Akademii Nauk SSSR, vol. 12, 1961, pp. 138-149.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE REGIONAL OFFICE, U.S. BUREAU OF COMMERCIAL FISHERIES, 101 SEASIDE AVE., TERMINAL ISLAND, CALIF. 90731.

Tuna Fishing Charts, Part I-II--April 1961-September 1961, October 1961-March 1962, 2 vols., illus., processed, 1963. (Translated from the Japanese, Tuna Fishing, no. 2 (86), July 1962.)

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

(Baltimore) Monthly Summary--Fishery Products, July and August 1964, 8 pp. each. (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 comparisons with previous periods; and wholesale prices for fresh fishery products on the Baltimore market; for the months indicated.

California Fishery Market News Monthly Summary, Part I--Fishery Products Production and Market Data, September 1964, 17 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif. 90731.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; prices for fish meal, oil, and solubles; for the month indicated.

Fishery and Oceanography Translations, No. 2, October 1964, 80 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, September 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.

List of 102 Program Reports, Publications, and Proposals for Oceanographic Instrumentation (Including 74 ICO's PIEF Reports and Papers), by Julius Rockwell Jr., 12 pp., processed, February 18, 1964. (Oceanographic Instrumentation Program, Biological Laboratory, U. S. Bureau of Commercial Fisheries, Washington, D. C. 20240.)

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

New England Fisheries--Monthly Summary, September 1964, 22 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston, Mass. 02210.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fish-

ery 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--August 1964, 18 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York, N. Y. 10038.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, including both the salt- and 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, October 1964, 8 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 receipts reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

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

Fishery Statistics of the United States, 1962, by E. A. Power and C. H. Lyles, *Statistical Digest* 56, 468 pp., illus., printed, 1964, \$2.25. The latest in a series of annual statistical reports on the fisheries of the United States contains data on the volume and value of the catch of fishery products, employment in the fisheries, quantity of gear operated, number of fishing craft employed in the capture of fish and shellfish, and information on the volume and value of the production of manufactured fishery products and by-products. The 1962 commercial fisheries of the United States yielded a record catch of 5.4 billion pounds valued at \$396 million ex-vessel. The volume of the catch was 86 million pounds above the previous high set in 1956, while the value was \$23 million greater than the \$373 million received in 1958. The average price paid ex-vessel in 1960 was 7.4 cents per pound. Large catches of menhaden, herring, and miscellaneous industrial fish kept the average price per pound relatively low despite an increase in the price paid for most items. Species

taken in record volume in 1962 were bluefin tuna, menhaden, blue crab, king crab, surf clam, and yellowtail flounder. The combined United States-Canadian catch of 75.1 million pounds of Pacific halibut (landed weight) was also a new record. Continuing a trend which began in 1960, the number of fishing vessels again declined. The 1962 catch was taken by 126,333 fishermen. Louisiana again led all other states in volume with 777 million pounds, accounting for almost 15 percent of the total 1962 United States landings. Alaska again led all other states in value with \$57 million--a little more than 14 percent of the United States total. San Pedro, Calif., was the leading fishing port in 1962 with respect to both volume and value of landings--362 million pounds with an ex-vessel value of \$36 million. For the third time, the catch taken for industrial products (2.81 billion pounds) exceeded the quantity taken for human food (2.54 billion pounds). The per capita consumption of fish and shellfish in the U. S. in 1962 was 10.7 pounds (edible weight)--0.1 pound less than in 1961. Reduced landings of ocean perch and pollock were chiefly responsible for declining landings in the groundfish industry. The 124 million pounds of ocean perch taken were the lowest since 1944 and less than half the record 258 million pounds taken in 1951. The Maine sea herring fishery made a remarkable recovery in 1962; the catch was up over 100 million pounds. The southern California Pacific and jack mackerel fishery landed 139 million pounds. The record 2.3 billion pounds of menhaden taken in 1962 was 33 million pounds greater than in 1961, and the largest annual catch of a single species ever landed in the United States. Landings of Pacific salmon were 314.6 million pounds worth a record \$56.4 million ex-vessel, up 4 million pounds and \$4 million from 1961. Only 15.4 million pounds of California sardines were landed, and with the exception of 1952 and 1953, the catch was the smallest since World War I. Landings of tuna were 312.1 million pounds worth \$45.1 million, a decline of 13.6 million pounds but an increase of \$2.8 million compared with 1961. The crab catch was 234 million pounds worth nearly \$19 million--a record in both volume and value. Landings of oysters were the lowest on record, only 56 million pounds--6.3 million less than the previous year. The production of shrimp products continued to increase in 1962, yielding processors a record \$161 million. The 1962 pack of canned fishery products by 373 plants in the United States, American Samoa, and Puerto Rico was 36.8 million standard cases (1.1 billion pounds worth \$456.9 million to the packers). The production of industrial fishery products by 158 plants was worth \$75.7 million--an increase of \$1.1 million over 1961. Production of fresh and frozen packaged fish fillets and steaks totaled 171.5 million pounds worth \$59.3 million to the processors. Fish stick production reached a record 72.2 million pounds, and portions also a record 78.7 million pounds. The 1962 production of frozen fish and shellfish was 343 million pounds--24 million pounds more than in 1961. U. S. foreign trade in fishery products (imports plus exports of domestic products) was valued at a record \$511 million--\$79 million more than in the previous year.

Propagation and Distribution of Food Fishes for the Calendar Years 1961 and 1962, *Statistical Digest* 55, 49 pp., September 1964, 25 cents.



## MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILD-LIFE 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.

### ARCTIC CHAR:

"Sapotit--home of the Arctic char," article, Trade News, vol. 17, no. 3, September 1964, pp. 3-5, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada. Depicts with photos the Eskimo summer fishery for Arctic char. They build up walls of rock across the river narrows, arranged in a manner that will lead the big, sleek Arctic char into a closed area of shallow water. Each summer the Eskimos must rebuild their stone weirs, which have been wrecked by the ice during the winter and spring, and when the walls are finished a watch is kept. When the char move upriver and into the traps the hunters, with wives and children beside them in the waist-deep water, spear the fish. The catch is stored to provide winter food for the Eskimo families and their dogs. In some regions commercial fisheries have been established during the past few years.

### ARGENTINA:

"Las posibilidades de los subproductos en la Argentina" (The potential for fishery byproducts in Argentina), article, Puntal, vol. 11, no. 126, September 1964, pp. 2-3, 5, illus., printed in Spanish. Puntal Apartado de Correos 316, Alicante, Spain.

### AUSTRALIA:

Fishing and Whaling, Australia, 1962-63, Statistical Bulletin No. 9, 24 pp., illus., processed, April 16, 1964. Commonwealth Bureau of Census and Statistics, Canberra, Australia. This is the ninth of a series of annual statistical bulletins dealing with the fishing and whaling industry. Statistics relate to the year 1962-63 for general fisheries, the 1962 season for pearl-shell and trochus-shell fisheries, and the 1963 season for whaling, with comparative data for the previous four years. Exports and imports of fishery products, unmanufactured shells, and marine animal oils are shown for 1962-63 together with comparable figures for the previous two years. The bulletin is divided into four parts. Part I deals with general fisheries including those for fish, crustaceans, and molluscs (edible products). Part II includes fisheries for pearl shell and trochus shell (inedible products). Part III covers the operations of the whaling industry in Australia and Norfolk Island. Part IV shows particulars of oversea trade in the products of fishing and whaling.

Native Freshwater Fishes of Australia, by Gilbert P. Whitley, 127 pp., illus., printed, 1964. 14s. 6d. (about US\$2.05). Jacaranda Press, Brisbane, Australia.

### AUSTRALIAN SALMON:

Australian Salmon, by W. B. Malcolm, Reprint 535, 4 pp., processed. (Reprinted from Fisheries Management Seminar, 1963, Report of Proceedings.) Division of Fisheries and Oceanography, Department of Primary Industry, Canberra, Australia.

### BACTERIOLOGY:

"A study of the microbiological quality of haddock filets and shucked, soft-shelled clams processed and marketed in the Greater Boston area," by J. T. R.

Nickerson and S. A. Goldblith, article, Journal of Milk and Food Technology, vol. 27, January 1964, pp. 7-12, printed. International Association of Milk and Food Sanitation, Box 437, Shelbyville, Ind.

### BALTIC SEA:

Yield of Baltic Catches in 1953-1954 as Compared with Previous Years (Wydajnosc Polowow Balttyckich w Latach 1953-1954 na tle lat Ubieglych), by Stanislaw Laxczynski, OTS 61-11363, 35 pp., illus., processed, 1964, 50 cents. (Translated from the Polish, Prace Morskiego Instytutu Rybackiego w Gdyni, vol. 9, 1957, pp. 705-738.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

### BELGIUM:

"L'entrepôt frigorifique maritime de Zeebrugge (Belgique)" (The marine cold store at Zeebrugge (Belgium)), by P. Jauniaux, article, Revue Generale du Froid, vol. 41, no. 2, February 1964, pp. 117-119, illus., printed in French. Association Francaise du Froid, 29 Blvd. Saint-Germain, Paris (6<sup>e</sup>), France.

### BIOCHEMISTRY:

"Studies on the external mucous substance of fishes. VII--Quantitative analysis of the mucous-polysaccharide from some fishes. I--Neutral sugar composition," by Noriyuki Enomoto and Yukio Tomiyasu, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 28, May 1962, pp. 510-513, printed. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan.

"Volatile alkaline matter and trimethylamine in meat of various fishes caught in Azov-Black Sea basin," by G. K. Koval'chuk and N. F. Moskalenko, article, Rybnoe Khoziaistvo, vol. 37, no. 12, 1961, pp. 64-68, printed in Russian. Rybnoe Khoziaistvo, V. Krasnoel'skaia 17, B-140, Moscow, U.S.S.R.

### BRAZIL:

"Classificacao economico dos peixes do Rio Grande do Sul" (Economic classification of fishes of Rio Grande do Sul), by B. N. Barcellos, article, Boletim Instituto Ciencia Natural da Universidade do Rio Grande do Sul, vol. 14, 1962, pp. 5-16, printed in Portuguese. Instituto Ciencia Natural, Universidade do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil.

"Nomes comuns dos peixes da costa do Rio Grande do Sul e seus correspondentes em sistemática" (Common names of fishes of the coast of Rio Grande do Sul, and their corresponding names in systematics), by B. N. Barcellos, article, Boletim Instituto Ciencia Natural da Universidade do Rio Grande do Sul, vol. 15, 1962, pp. 7-20, printed in Portuguese.

### BRITISH VIRGIN ISLANDS:

Basic Data on the Economy of the British Virgin Islands, by Lawrence J. Comella, OBR 64-110, 8 pp., illus., printed, September 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.) These 32 islands with a land area of 58 square miles are situated about 60 miles east of Puerto Rico and about 140 miles northwest of St. Kitts. The report discusses geography, population, and government; structure of the economy--agriculture, fishing, forestry, tourism, transportation, communications, utilities, labor, housing, currency, and development programs; and foreign trade,

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

including customs tariff. Included are statistical tables on foreign trade, 1958-61; imports by principal suppliers, 1961; and imports of principal commodities, 1961.

#### CALIFORNIA:

California Fish and Game, vol. 50, no. 4, October 1964, 95 pp., illus., printed, single copy 75 cents. Documents Section, P. O. Box 1612, Sacramento, Calif. 95807. Includes, among others, articles on: "Age and length composition of the sardine catch off the Pacific Coast of the United States and Mexico in 1961-62," by Anita E. Daugherty and Robert S. Wolf; and "Report on a recent shark attack off San Francisco, California," by Ralph S. Collier.

#### CANADA:

Journal of the Fisheries Research Board of Canada, vol. 21, no. 3, May 1964, 232 pp., illus., printed, single copy C\$2. Queen's Printer, Ottawa, Canada. Includes, among others, articles on: "Seasonal distribution of cod (Gadus morhua L.) along the Canadian Atlantic coast in relation to water temperature," by Yves Jean; "Cod roe: component fatty acids as determined by gas-liquid chromatography," by R. G. Ackman and R. D. Burgher; "Tributary homing of sockeye salmon at Brooks and Karluk Lakes, Alaska," by Wilbur L. Hartman and Robert F. Raleigh; "The primary production of a British Columbia fjord," by Malvern Gilmartin; "Polyphosphate treatment of frozen cod. 2--Effect on drip, yield, lipid hydrolysis and protein extractability in twice-frozen Newfoundland summer trap and fall cod," by W. A. MacCallum and others; "Incidence of Ligula intestinalis in Heming Lake fish," by G. H. Lawler; "Cooking method and palatability of frozen cod fillets of various qualities," by W. J. Dyer; "Fecundity of the American plaice, Hippoglossoides platessoides (Fabr.) from Grand Bank and Newfoundland areas," by T. K. Pitt; "Net avoidance behavior of carp and other species of fish," by John R. Hunter and Warren J. Wisby; "A vacuum-assisted subsampler for use with small planktonic organisms," by Robert A. McHardy; "Further evidence of hardness of 'silver' pike," by G. H. Lawler; "Utilization of lipids by fish. III--Fatty acid oxidation by various tissues from sockeye salmon (Oncorhynchus nerka)," by R. E. E. Jonas and E. Bilinski; and "An unusually late-spawning British Columbia chum salmon," by W. Percy Wickett.

#### CANNING:

Revolutionary Canning Process, by Howard P. Milleville, 8 pp., illus., printed. (Reprinted from Food Processing, March 1964.) Swift & Company, Grocery Division, 115 W. Jackson Blvd., Chicago, Ill. 60604. Discusses a continuous processing production unit now in operation in a Missouri plant that eliminates retorting required in the conventional canning of foods. The retort is a pressurized chamber where, in the conventional canning process, steam heats the sealed cans of food to sterilizing temperature. In the new process, the filling operation is conducted in a pressurized chamber or room so that the foods are at sterilizing temperatures when filled and sealed into the cans. Flavor of the products is excellent and shelf life is reported as being surprisingly good. A letter from the patentee states: "Up to the present time research and prod-

uct development activity has been concentrated in the area of canned meat products. We feel that the process can well have benefits when applied to the canning of fish but no research has been done in this direction and none is currently scheduled."

#### CARP:

"Carp control gets results," by Barney Wanie, article, Wisconsin Conservation Bulletin, vol. 28, no. 6, 1963, pp. 22-23, illus., printed, Wisconsin Conservation Department, Box 450, Madison 1, Wis.

#### CATFISH:

"The channel cat," by Alan H. Finke, article, Wisconsin Conservation Bulletin, vol. 29, no. 2, 1964, pp. 18-19, illus., printed.

#### CEYLON:

Foreign Trade Regulations of Ceylon, by Jackson B. Hearn, OBR 64-116, 8 pp., printed, September 1964, 15 cents. Bureau of International Commerce, Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Ceylon's trade policy is designed to adjust imports to the country's economic needs within the limits of available foreign exchange resources. In addition to trade policy, the report discusses import tariff system, documentation, and labeling and marketing requirements. Also covers special customs provisions, nontariff import controls, Ceylon's export controls, United States foreign trade controls, and Government representation between Ceylon and the United States.

#### CHEMICAL CONTENT:

"Determination of Zirconium 95 and Niobium 95 in seaweed and sea water," by B. L. Hampson, article, Analyst, vol. 88, July 1963, pp. 529-533, printed. Analyst, W. Heffer & Son, Ltd., Cambridge, England.

#### CHESAPEAKE BAY:

Chesapeake Science, vol. 5, no. 3, September 1964, 51 pp., illus., printed, single copy 75 cents. Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md. includes, among others, these articles: "Length increment during terminal molt of the female crab, Callinectes sapidus, in different salinity environments," by Paul A. Haefner, Jr. and Carl N. Shuster, Jr.; "Fish distribution at varying salinities in Neuse River Basin, North Carolina," by Lewell Keup and Jack Bayless; "Uptake and retention of Rhodamine B by Quahog clams, Merccenaria mercenaria," by J. R. Geckler and T. A. Wandstrat; "Morphometry of the common Atlantic squid, Loligo pealei, and the brief squid, Lolliguncula brevis, in Delaware Bay," by Paul A. Haefner, Jr.; and "Growth compensation in four year classes of striped bass, Roccus saxatilis, from Albemarle Sound, North Carolina," by William R. Nicholson.

#### CLAMS:

Dried Unicellular Algae as Food for Larvae of the Hard Shell Clam, MERCENARIA MERCENARIA, by Herbert Hidu and Ravenna Ukeles, 17 pp., illus., processed. (Reprinted from Proceedings of the National Shellfisheries Association, vol. 53, 1962, pp. 85-101.) National Shellfisheries Association, Virginia Institute of Marine Science, Gloucester Point, Va.



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

## COD:

"Cooking method and palatability of frozen cod filets of various qualities," by W. J. Dyer and others, article, Journal of the Fisheries Research Board of Canada, vol. 21, 1964, pp. 577-589, printed. Queen's Printer, Ottawa, Canada.

1950-1954 Distribution of Spawning Shoals of Cod in Bornholm Basin in the Light of Varying Environmental Factors (Rozmieszczenie Lawic Rozrodczych Dorsza w Basenie Bornholmskim w Latach 1950-1954 w Swietle Zmiennych Czynnikiow Srodowiska), by Jan Elwertowski, OTS 61-11359, 14 pp., illus., processed, 1964, 50 cents. (Translated from the Polish, Prace Morskiego Instytutu Rybackiego w Gdyni, vol. 10/A, 1959, pp. 361-374.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

## COLD STORAGE:

Progres dans la Science et la Technique du Froid--Comptes Rendus du XI<sup>e</sup> Congres International du Froid, Munich (Allemagne), 1963 (Progress in Refrigeration Science and Technique, Report of the 11th International Congress of Refrigeration, Munich, Germany, 1963), 3 Vols., printed in French and English, 1964, \$40. International Institute of Refrigeration, 177, Blvd. Malesherbes, Paris (17<sup>e</sup>), France. Volume II discusses problems of refrigeration of fish. It also contains a section on Commission 6 c, pertaining to theory and industrial development of freeze-drying, and its medical and biological application.

## CONTAINERS:

"El envase de aluminio para conservas de pescado" (The aluminum container for canned fish), article, Informacion Conservera, vol. 12, no. 127, July 1964, pp. 278, 279, printed in Spanish, single copy 30 ptas. (about 50 U. S. cents). Informacion Conservera, Colon, 62, Valencia, Spain.

"Solubility of tin in canned marine foods on the market," by Chong Hun Won, article, Chemical Abstracts, vol. 58, April 15, 1963, 8356a, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

## CRABS:

Reprint from Transactions of the American Fisheries Society, vol. 93, no. 3, July 1964. American Fisheries Society, 1404 New York Ave. NW., Washington, D. C. 20005; Fishing Mortality and Movements of Adult Male King Crabs, PARALITHODES CAMTSCHEATICA (Tilesius), Released Seaward from Kodiak Island, Alaska, by Guy C. Powell, 6 pp. (pp. 295-300), illus., printed.

Tag Loss during Ecdysis by the King Crab, PARALITHODES CAMTSCHEATICA (Tilesius), by George W. Gray, Jr., 2 pp. (pp. 303-304), printed.

"Relative abundance of edible crabs of family Portunidae in Karachi offshore waters," by Syed Salah-ud-Din Hashmi, article, Pakistan Journal of Science, vol. 15, no. 3, 1963, pp. 115-119, printed. Pakistan Association for the Advancement of Science, Lahore, Pakistan.

## CRUSTACEANS:

Serial Atlas of the Marine Environment--Euphausiids and Pelagic Amphipods, Distribution in North Atlantic and Arctic Waters, by Maxwell J. Dunbar, Folio 6, 10 pp., illus., printed, 1964, \$7. Serial Atlas of the Marine Environment, American Geographical Society, Broadway at 156th St., New York, N. Y. 10032. This folio presents the North Atlantic and Arctic distribution of 8 species of pelagic crustacea, northward from the Labrador coast and the British Isles. Essentially a study of the northern limits of the southern forms, and the southern limits of the northern forms. Anomalies in distribution, in terms of Arctic, Subarctic, and Atlantic water masses are brought out, and the relevance of pelagic distribution studies to water mass, food supply, and ecosystem complexity is discussed briefly. The 8 species mapped are Meganyctiphanes norvegica (M. Sars), Thysanoessa longicaudata (Krøyer), T. inermis (Krøyer), T. raschii (M. Sars), Parathemisto gaudichaudi (Guérin), P. abyssorum (Boeck), P. libellula (Mandt), and Gammarus wilkitzkii Birula. This study forms Folio 6 of the Serial Atlas, which is being issued as a series of separate folios, each a complete study in itself of a physical, biological, chemical, or geological aspect of the ocean.

## DENMARK:

Fiskeriberetning for Aret 1963 (The Ministry of Fisheries Annual Report for 1963), 136 pp., illus., printed in Danish with English summary, Kr. 7.50 (about US\$1.10). Fiskeriministeriet, 1 Kommission Hos, G. E. C. Gad, Copenhagen, Denmark. Includes information and statistical tables on number of fishermen employed, fishing vessels and gear, and landings of fish and shellfish. Also contains information on trout farms; production of canned, filleted, and smoked fish; and foreign trade in fishery products; organization of Fisheries Ministry; and legislation pertaining to fisheries.

## DOGFISH:

"Long journey of the dogfish," by Walter N. Hess, article, Natural History, vol. 73, no. 9, November 1964, pp. 32-35, illus., printed, single copy 50 cents. The American Museum of Natural History, Central Park W. at 79th St., New York, N. Y. 10024. Discusses the life history and annual migrations of the dogfish, Squalus acanthias, from the Virginia-Carolina coastal waters to Labrador. One of the great mysteries about the migration and feeding activities of these small sharks is how they keep together in packs, since the sea is so spacious and is relatively dark at the depths where they are usually found. Like their larger relatives, S. acanthias have an exceedingly keen sense of smell and a lateral line sense for detecting vibrations in water; these may help them stay together. Their round-trip of 2,500 miles a year, or ten miles a day, is certainly a most exceptional feat of migration.

## DOLPHIN:

Commercial Utilization of Dolphins (Porpoises) in Ceylon, by A. W. Lantz and C. Gunasekera, Bulletin No. 3, 14 pp., illus., printed, 1955. Department of Fisheries, Colombo, Ceylon. Describes in detail the commercial possibilities in the capture and utilization of two species of dolphins abundant in waters adjacent to Ceylon. Outlines the method of capture and use of

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

dolphin meat for human consumption, together with recipes for cooking. The possibility of using dolphin skin as a fine leather is also discussed, and the process for tanning the skin is explained. In conclusion the authors state that "Fresh dolphin meat when placed on the market sold readily despite some local prejudice against the naturally dark-coloured meat. The flesh of the dolphin is nutritious and can be used successfully in both western and eastern types of cookery. An effort should be made to popularize the dolphin flesh as a high quality protein food. The price should be reasonable so that low-income groups may benefit from its use and nutritional properties." The authors add that "The skin of the dolphin can be tanned to yield at least two kinds of excellent quality leather. The blubber layer which lies immediately under the skin can be rendered into commercially valuable oil. Unused portions such as parts of the head, the bones, viscera and flesh trimmings can be processed into meal for additions to animal feeds or for soil fertilization. The process of manufacture is similar to that used for production of fish meals."

Morphological Basis for the Ultrasonic and Sonic Detection Characteristics of the Dolphin, by V. P. Zvorykin, OTS 63-31738, 15 pp., processed, September 11, 1963, 50 cents. (Translated from the Russian, *Arkhiv Anatomii, Gistologii i Embriologii*, no. 7, 1963, pp. 3-17.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

The Secrets of the Dolphin, by Helen Kay, 120 pp., illus., printed, 1964, \$3. The MacMillan Co., 60 Fifth Ave., New York, N. Y. 10011. The most playful yet intelligent mammal--the dolphin or porpoise--is the main character in this book. Jacques-Yves Cousteau says: "The brain of a porpoise is the same weight and size in comparison to its body as man's." This is no fiction story, but a true story. Careful research and the use of many sources has resulted in a true but delightful popular description of this mammal. Anecdotes, history, legend, and scientific facts are blended together into a panoramic picture of the dolphins. Today dolphins are top attractions for sightseers visiting at the many marine aquariums found in the United States and other parts of the world. Scientists also are delving into the dolphin's ability to understand and to learn quickly. Human personalities are almost imparted to the particular dolphins the author describes in Part I, which is titled "Dolphins are Delightful!" The second part is devoted to the legends and lore surrounding the dolphin. In the part on legends, one chapter is titled: "Were the Dolphin Riders Legend?"; and the other chapters deal with the dark ages of the dolphin; "Pilot Jack;" and "You Can Swim Like a Dolphin." In Part III, dealing with the secrets of the dolphin, are found chapters on the porpoises and sonar; porpoise watching; how the dolphins hear without an ear; "This Man Talks to Dolphins;" and the porpoises of Point Mugu. Included is an appendix, "What's in a Name?;" a small but interesting bibliography; and an adequate index for quickly locating some of the many bits of information the book contains. Written for the young reader, it still makes fascinating reading for any adult young at heart or for reading out loud to a group of children.

#### ECUADOR:

Apuntes e Informaciones sobre las Pesquerias en las Provincias del Guayas y los Rios (Memoranda and Information on the Fisheries in the Provinces of Guayas and los Rios), Boletin Informativo, vol. 1, no. 4, 85 pp., illus., printed in Spanish, 1964, Instituto Nacional de Pesca del Ecuador (Biblioteca), Casilla 5918, Guayaquil, Ecuador.

#### EUROPEAN FREE TRADE ASSOCIATION:

Fourth Annual Report of the European Free Trade Association, 1963/1964, 30 pp., printed, Sept. 1964, \$1. European Free Trade Association, 711 14th St. NW., Washington, D. C. 20005.

#### FACTORYSHIP:

"On board the Constanta," by E. B. Slack, article, World Fishing, vol. 13, June 1964, pp. 63-64, 67-68, printed. John Trundell and Partners Ltd., St. Richard's House, Eversholt St., London NW1, England. Discusses the 10-day visit of the author on board the Rumanian factory trawler Constanta to meet its staff and share their working and off-duty experiences on board the vessel. Of the capital investment in the vessel, about \$1 million is in the form of elaborate scientific and technological equipment. She is the largest factory trawler yet in operation, and pulls the largest trawl net ever designed. Estimates place her catching performance at about 80 tons in 24 hours. The largest single haul was made in one trawling period of about 2 hours and was estimated to be about 15-20 tons. The trials, conducted off New Zealand, were considered to be highly successful and the vessel will operate in the future in North Atlantic waters.

#### FAT:

"Results of recent investigations on fats of sea- and fresh-water animals," by T. H. Khoe, article, Chemical Abstracts, vol. 59, August 19, 1964, 4301c, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### FATTY ACIDS:

"Positional distribution of fatty acids in fish and other animal lecithins," by Daniel B. Menzel and H. S. Olcott, article, Biochimica et Biophysica Acta, vol. 84, April 20, 1964, pp. 133-139, printed. Elsevier Publishing Co., P. O. Box 211, Amsterdam, Netherlands.

#### FEEDING:

Feeding and Food Relationships of Fishes in the Piedmont Tributaries of the Lower Amur River (Pitanie i Pishchevye Otnosheniya Ryb v Predgornnykh Pritokakh Nizhnego Techeniya Amura), by V. Ya. Levandov, OTS 63-11104, 18 pp., processed, 1964, 50 cents. (Translated from the Russian, Voprosy Ikhtiologii, No. 13, 1959, pp. 139-155.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Method of Estimating the Production of Organisms Serving as Food for Fishes (K Metodike Opredeleya Produktsii Kormovykh Dlya Ryb Zhivotnykh), by A. S. Konstantinov, OTS 63-1115, 5 pp., processed, 1964, 50 cents. (Translated from the Russian, Nauchnye Doklady Vyssei Shkoly, Biologicheskie Nauki, no. 4, 1960, pp. 59-62.)



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

#### FILLETTS:

"Certain microbial indices of frozen uncooked fish fillets," by Gerald J. Silverman, Norman S. Davis, and John T. R. Nickerson, article, Journal of Food Science, vol. 29, May-June 1964, pp. 331-336, printed. Institute of Food Technologists, 510-522 N. Hickory St., Champaign, Ill.

"Filletting Fish," Patent No. 928, 733, article, Food Manufacture, vol. 39, March 1964, p. 87, printed. Grampian Press, Ltd., The Tower, Shepherds Bush Rd., Hammersmith, London W6, England.

#### FISH BEHAVIOR:

Methods of Studying the Schooling Behavior of Fishes (O MetodaKh Izucheniya Stainogo Povedeniya Ryb), by Yu. E. Milanovskii and V. A. Rekrubratskii, OTS 63-11116, 6 pp., processed, 1964, 50 cents. (Translated from the Russian, Nauchnye Doklady Vysshei Shkoly, Biologicheskije Nauki, no. 4, 1960, pp. 77-81.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Orientation of Fishes, by Arthur D. Hasler, Final Report for 1 Sep 57-30 Aug 63, 16 pp., printed, May 1963. University of Wisconsin, Madison, Wis.

The Role of the Sun's Altitude in Sun Orientation of Fish, by Horst O. Schwassmann and Arthur D. Hasler, 16 pp., printed, April 1964. (Reprinted from Psychological Zoology, vol. 37, no. 2, April 1964, pp. 163-177.) Laboratory of Limnology, University of Wisconsin, Madison, Wis.

Use of Mechanical Devices in Studying the Distribution and Behavior of Commercial Fishes (Opyt Priimeneniya Tekhnicheskikh Sredstv Izucheniya Raspredeleniya i Povedeniya Promyslovykh Ryb), by O. N. Kiselev, OTS 63-11114, 4 pp., processed, 1964, 50 cents. (Translated from the Russian, Trudy Soveshchaniy Ikhtologicheskoi Komissii Akademii Nauk SSSR, no. 10, 1960, pp. 235-238.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### FISH COOKERY:

Frozen King Crab, 25 cards, illus., printed. Wakefield's Deep Sea Trawlers, Inc., Fishermen's Terminal, Seattle 99, Wash. A set of 25 3¼-inch by 5½-inch cards containing recipes for preparing king crab, with color-illustrated dividers. Sections include product information; and recipes for salads, king crab legs, and hot dishes. Some of the recipes include crab louis, crab leg appetizer with Mediterranean sauce, crab meat Caribbean, crab imperial, and crab meat Newburg.

#### FISH FOOD:

"Pelleted fish food," article, Feedstuffs, vol. 36, July 11, 1964, p. 16b, printed. Feedstuffs, P. O. Box 67, Minneapolis, Minn. 55440.

#### FISHING EFFORT:

Licence Limitation as a Means of Controlling Fishing Effort, by G. L. Kesteven and G. R. Williams, Reprint 536, 14 pp., illus., processed. (Reprinted from Fisheries Management Seminar, 1963, Report of Proceedings.) Division of Fisheries and Oceanography, Department of Primary Industry, Canberra, Australia.

#### FISHING WITH LIGHTS:

"Peche au feu" (Fishing with lights), by J. P. Gapihan, article, France Peche, no. 88, October 1964, pp. 40-41, illus., printed in French, single copy 2.5 F (about 50 U. S. cents). France Peche, Boite Postale 179, Lorient, France.

#### FISH-LIVER OIL:

Contribucion al Estudio Fisicoquimico de los Aceites de Higado de Pescado (Contribution to the Physical-Chemical Study of Fish-Liver Oils), by Manuel Calvo Mendoza, 48 pp., illus., printed in Spanish, 1962. Direccion General de Pesca e Industrias Conexas, Secretaria de Industria y Comercio, Mexico, D. F.

"Effect of sunlight and air on cod-liver oil," by Stanislaw Byczkowski and Wanda Kiewlicz, article, Chemical Abstracts, vol. 58, April 15, 1963, 8152c, printed. The American Chemical Society, 1155 16th St. N.W., Washington, D. C. 20006.

#### FISH OIL:

"Oxidizing deterioration of medicinal fish oils," by V. G. Parteshko, article, Chemical Abstracts, vol. 60, April 27, 1964, 10479d, printed.

"Partial characterization of the hydrocarbons of herring oil," by Georg Lambertsen and Ralph T. Holman, article, Chemical Abstracts, vol. 58, June 10, 1963, 12778a, printed.

"Use of fish oil fractions in human subjects," by Kunitaro Imaichi and others, article, Chemical Abstracts, vol. 59, December 9, 1963, 14354g, printed.

#### FISH PASSAGE:

First Results of the Operation of the Fish Pass at the Volga Hydroelectric Station Named "XXII Congress of the KPSS", by L. M. Nusenbaum, 4 pp., processed, 1963. (Translated from the Russian, Rybnoe Khoziaistvo, vol. 37, no. 11, 1961, pp. 13-18.) Biological Station, Fisheries Research Board of Canada, Nanaimo, B. C., Canada.

#### FISH PROTEIN CONCENTRATE:

"Odorless fish flour," by Yohei Hashimoto and Kazuo Miura, article, Chemical Abstracts, vol. 60, March 2, 1964, 6144b, printed. The American Chemical Society, 1155 16th St. N.W., Washington, D. C. 20006.

"Some aspects of the technology of fish flour," by M. N. Moorjani and N. L. Lahiry, article, Review of Food Science and Technology, vol. 4, 1962, pp. T13-136, printed. Central Food Technological Research Institute, Mysore, India.

#### FISH SAUCE:

"Study on the production of fish sauce. I--Effect of commercial proteolytic enzymes on the production of fish sauce," by S. Murayama, D. L. Calvez, and P. Nitayachin, article, Bulletin, Tokai Regional Fisheries Research Laboratory, no. 32, 1963, pp. 155-162, printed in Japanese. Tokai Regional Fisheries Research Laboratory, Tsukishima, Chuo-ku, Tokyo, Japan.

#### FISH SPOTTING:

"La detección de los bancos de peces por medio de helicópteros" (The detection of fish schools by means

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

of helicopters), by M. Yves Bourdreault, article, Puntal, vol. 11, no. 125, August 1964, pp. 2-3, 5, 7, illus., printed in Spanish, single copy 12 ptas. (about 20 U. S. cents). Puntal, Apartado de Correos 316, Alicante, Spain.

#### FOOD AND AGRICULTURE ORGANIZATION:

FAO--Its Organization and Work and United States Participation, by Ralph W. Phillips, FAS-M-93-Revised, 30 pp., illus., processed, August 1964. Foreign Agricultural Service, Rm. 5918, U. S. Department of Agriculture, Washington, D.C. 20250. This publication is designed to provide information on the manner in which the Food and Agriculture Organization (FAO) was established, how it has developed during its first two decades, and ways in which the United States participates. Also, it provides background on membership, governing bodies, organizational structure, and programs.

Informe Provisional de la IIa Reunion de "C.A.R.P.A.S." Celebrada en Mar del Plata (Argentina) del 27 al 30 de Abril de 1964. (Provisional Report on the Second Meeting of C.A.R.P.A.S. Held in Mar del Plata, Argentina, April 27-30, 1964), 23 pp., processed in Spanish, distribution limited. Comision Asesora Regional de Pesca para el Atlantico Sudoccidental, Rua do Jardim Botânico No. 1008, Rio de Janeiro, Brazil. C.A.R.P.A.S. is the Regional Fisheries Advisory Commission for the Southeast Atlantic.

Proceedings 10th Session, Seoul, Korea, 1962. Section II--Technical Papers, 330 pp., printed, 1963. Indo-Pacific Fisheries Council, Regional Office for Asia and the Far East, Food and Agriculture Organization of the United Nations, Bangkok, Thailand.

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

Second Report to the Government of the United Arab Republic on Fishery Investigations on the Nile River, the Lakes and the Pond Farms in Egypt, by Wilhelm F. J. Wunder, ETAP Report No. 1640, 25 pp., illus., processed, 1963.

Fourth Report to the Government of India on Fishing Boats, by Albert Sutherland, ETAP Report No. 1710, 46 pp., illus., processed, 1963.

Report to the Government of Rhodesia and Nyasaland on the Fisheries Development Program for Lake Tanganyika, by Alphonse Collart, ETAP Report No. 1716, processed.

Report on the Regional Training Center on Fish Processing Technology Held at Quezon City, Philippines, by Rudolph Kreuzer, ETAP Report No. 1725, processed.

Report to the Government of El Salvador on Development of Inland Fisheries, by S. Y. Lin, ETAP Report No. 1735, 28 pp., illus., processed, 1963.

Informe al Gobierno de Chile sobre Cooperativas Pesqueras (Report to the Government of Chile on Fishery Cooperatives), by Paulino San Emeterio, ETAP Report No. 1764, processed.

Informe al Gobierno de Honduras sobre los Recursos de Camarones (Report to the Government of Honduras on the Shrimp Resources), by Harold Loesch, ETAP Report No. 1787, processed.

#### FOREIGN TRADE:

"Lending agencies help," by Ada Wrigley, article, International Commerce, vol. 70, no. 46, November 16, 1964, pp. 5-11, illus., 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.) Two United States agencies and several international institutions provide loans which help U. S. exporters and investors. Their purposes, resources, spheres of operation, and loan requirements vary considerably. This article and the accompanying chart provide an up-to-date summary of the purposes and character of these institutions insofar as their major lending operations are concerned. Discusses the Export-Import Bank, Agency for International Development, World Bank (comprising the International Bank for Reconstruction and Development, International Development Association, and the International Finance Corporation), and the Inter-American Bank.

#### FRANCE:

"La production de la pêche française en 1963" (The French fishery production in 1963), article, La Pêche Maritime, vol. 43, no. 1037, August 1964, pp. 579-585, illus., printed in French, single copy 12 F (about US\$2.45). Les Editions Maritimes, 190, Blvd. Haussmann, Paris, France.

#### FREEZE DRYING:

"Freeze-dried foods flavour ratings," article, Food Manufacture, vol. 39, May 1964, p. 68, printed, Grampian Press, Ltd., The Tower, Shepherds Bush Rd., Hammersmith, London W6, England.

"Rapid reconstitution of freeze-dried foods," by F. Fidler, article, Food Manufacture, vol. 39, June 1964, p. 55, printed.

"Suska ryby metodom sublimacii" (Freeze drying of fish), by A. K. Kaminarskaja, article, Kholodil'naia Tekhnika, no. 6, 1962, pp. 42-45, illus., printed in Russian. Four Continent Book Corp., 822 Broadway New York, N. Y. 10003.

#### FREEZER TRAWLER:

"All freezer trawler," article, Modern Refrigeration, vol. 66, no. 788, November 1963, pp. 1026-1029, printed. Refrigeration Press Ltd., Maclaren House, 131 Great Suffolk St., London SE1, England.

#### FREEZING ON BOARD:

"Nuevos métodos para congelar pescados en alta mar" (New Freezing processes for fish on the high seas), article, La Técnica del Frío, vol. 11, no. 105, July-August 1963, pp. 52-68, illus., printed in Spanish.



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

Calveiro y Liberatore, 436 Rio Bamba, Buenos Aires, Argentina.

#### FRENCH GUIANA:

Basic Data on the Economy of French Guiana, by Walter Haidar, OBR 64-111, 8 pp., illus., printed, September 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.) French Guiana, an underpopulated and underdeveloped land of potential wealth, depends heavily on the French Government for financial and technical assistance. That government is fostering a policy of economic development; and public spending, mainly for the improvement of port facilities, roads, and utilities, was increased in 1963. The report discusses geography and climate, population and employment, and Government; national income; agriculture, forestry, and fishing; mineral resources; industry; transportation, communications, and utilities; public and private investments and sales potentials; development programs; financial situation; and foreign trade. The seas bordering Guiana abound in turtles, shellfish of all kinds, mullet, tuna, swordfish, and a great variety of shrimp.

#### FRESHNESS:

"Un nuovo apparecchio per la determinazione istantanea della freschezza del pesce: il Fish Tester V" (A new device for the instant determination of the freshness of fish: the Fish Tester V), article, La Pêche Maritime, vol. 43, 1964, p. 121, printed in French. Les Editions Maritimes, 190, Blvd. Haussmann, Paris, France.

#### FRESH-WATER FISHERIES:

"Freshwater fisheries--problems and potential," by John S. Lake, article, Fisheries Newsletter, vol. 23, no. 9, September 1964, pp. 24-25, 27, illus., printed, Fisheries Branch, Department of Primary Industry, Canberra, Australia.

#### FROZEN FISH:

"Accent on frozen fish and seafood profits," by Robert J. Gruber, article, Quick Frozen Foods, vol. 26, April 1964, p. 49, printed, E. W. Williams Publications, Inc., 82 Wall St., New York, N. Y. 10005.

"Decongelazione del pesce per mezzo dell'alta frequenza" (Electronic thawing of frozen fish), by M. Benezit, article, Revue Generale du Froid, vol. 41, 1964, p. 53, printed, Association Française du Froid, 29 Blvd. Saint-Germain, Paris (6<sup>e</sup>), France.

"Le transport des poissons surgelés" (Transport of frozen fish), by R. Reynaud, article, Revue Generale du Froid, vol. 41, no. 1, January 1964, pp. 37-43, illus., printed in French.

Electrical Resistance Thawing of Fish, by H. R. Sanders, Torry Memoir No. 143, 5 pp., illus., printed, 1963, Torry Research Station, 135 Abbey Rd., Aberdeen, Scotland.

"Modern Danish view on the handling and distribution of frozen fish," by Mogens Jul, article, Food Technology, vol. 17, August 1963, pp. 46-48, printed, The Garrard Press, 510 N. Hickory, Champaign, Ill.

"Die sache mit dem aufgetauten frostfisch" (The problem of thawed frozen fish), by K. Bahr, article, Tieskühlkette, no. 90, June 1963, pp. 16-18, printed in German. H. E. Albrecht Verlag KG., Freihamerstrasse No. 2, Munich, Federal Republic of Germany.

#### GEAR:

Fishing Power Studies, by J. E. Paloheimo, Manuscript Report Series (Biological) No. 789, 2 pp., printed, 1964, Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.

"On working performance of net-hauling machines of different types," by R. T. Mikhailov, article, Rybnoe Khoziaistvo, vol. 38, no. 11, 1962, pp. 59-64, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia 17, B-140, Moscow, U.S.S.R.

The following papers (in English with French and Spanish abstracts) were presented at the Second World Fishing Gear Congress, London, May 25-31, 1963:

Development of Electrical Shrimp Trawling Gear, by F. Wathne, 12 pp., illus., processed, U. S. Bureau of Commercial Fisheries, Gear Research Station, Panama City, Fla.

Double-Rig Shrimp Beam Trawling, by J. Verhoest and A. Maton, 20 pp., illus., processed, Commissie T.W.O.Z., University of Agriculture, Ostend, Belgium.

Prospective Developments in Harvest of Marine Fishes, by D. L. Alverson and N. J. Wilimovsky, 16 pp., illus., processed, Exploratory Fishing and Gear Base, U. S. Bureau of Commercial Fisheries, Seattle, Wash.

Shrimp Behavior Related to Gear Research and Development, by C. M. Fuss, Jr., 12 pp., illus., processed, U. S. Bureau of Commercial Fisheries, Gear Research Station, Panama City, Fla.

#### GENERAL:

Preliminary List of Information Sources Relating to Fisheries Sciences, by A. Soulier, Occasional Paper 64/4, 13 pp., printed, 1964, Indo-Pacific Fisheries Council, Regional Office for Asia and the Far East, Food and Agriculture Organization of the United Nations, Bangkok, Thailand.

Sea Fishing for Pleasure and Profit, by R. C. O'Farrell, 126 pp., illus., printed, Fishing News (Books) Ltd., Ludgate House, 110 Fleet St., London EC4, England.

#### GERMAN FEDERAL REPUBLIC:

Fischerei, I--Fangergebnis der See- und Küstenfischerei, 1963 Vorbericht (Fisheries, I--High-Seas and Coastal (Fishery) Catch Results, 1963 Preliminary Data), Land- und Forstwirtschaft, Fischerei, Series 4, 7 pp., processed in German, Verlag W. Kohlhammer GmbH, Stuttgart und Mainz, German Federal Republic.

Informationen für die Fischwirtschaft, vol. 11, no. 2, 1964, 37 pp., illus., processed in German. Bundesforschungsanstalt für Fischerei, Palmalle 9, Hamburg-Altona 1, Federal Republic of Germany. Includes, among others, these articles: "Westafrika-reise des FFS Walther Herwig" (West Africa voyage

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

of the fishery research vessel Walther Herwig, by A. von Brandt; "Die Fanggebiete der Deutschen Fischerei" (The fishing grounds of German fisheries), by A. Meyer; "Impulszahlen und stromdichtewerte beim elektrischen aalfang" (Impulse and current density in electrofishing for eels), by E. Halsband; and "Zur frage der qualitat und haltbarkeit auf see tiefgefrorener und an land aufgetauter fische" (The quality and keeping properties of fish frozen at sea and thawed on land), by N. Antonacopoulos.

Informationen fur die Fischwirtschaft, vol. 11, no. 3, 1964, 41 pp., illus., processed in German. Includes, among others, these articles: "Die verhandlungen der Nordatlantischen Fischerei-Kommission" (Negotiations of the Northeast Atlantic Fisheries Commission), by D. Sahrhage; "Die internationale diskussion uber die schonung der Nordsee-heringe" (The international discussions on the conservation of the North Sea herring), by G. Hempel; and "Monatskarten der Deutschen grossen heringsfischerei fur 1963 (Monthly reporting on German high-seas herring fishery for 1963), by K. Schubert.

#### GROUND FISH:

The Homogeneity of Canadian Samples for Lengths and Ages of Commercially-Caught Cod and Haddock, by L. M. Dickie, Manuscript Report Series (Biological) No. 787, 5 pp., printed, 1964. Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.

#### GULF OF MEXICO:

Bulletin of Marine Science of the Gulf and Caribbean, vol. 14, no. 3, 1964, 147 pp., illus., printed, single copy \$2. Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami, Fla. 33149. Contains, among others, articles on: "Tagging experiments on the flying fish Hirundichthys affinis (Gunther)," by John B. Lewis; "A note on three specimens of the squid Lampadoteuthis megaleia Berry, 1916 (Cephalopoda: Oegopsida) from the Atlantic Ocean, with a description of the male," by Richard E. Young; and "A note on some cephalopods from Brazil, with a description of a new species of octopod, Eledone Massyae," by Gilbert L. Voss.

#### HALIBUT:

Investigation, Utilization and Regulation of the Halibut in Southeastern Bering Sea, by Henry A. Dunlop and others, Report No. 35, 72 pp., illus., printed, 1964. International Pacific Halibut Commission, Fisheries Hall No. 2, University of Washington, Seattle 5, Wash. Reviews the pertinent facts regarding the halibut, the fishery, and the management and utilization of the resource in the north Pacific Ocean and Bering Sea. Covers the occurrence of halibut in the Bering Sea, early life history of the halibut and hydrography of its habitat, commercial availability in the Bering Sea, review of regulations, statistics of the Canadian and United States set-line fishery, and Japanese and Russian trawl fisheries. It also discusses tagging studies conducted between 1930 and 1959, studies of the composition of the stock, growth studies, stock relationships, utilization of the catch, and maximum sustainable yield from Area 3B North Triangle.

#### HERRING:

"Brown discoloration in pickled herring," by A. Ruiter, article, Deutsche Lebensmittel-Rundschau, vol. 59, no. 4, 1963, pp. 110-111, printed in German. Wissenschaftliche Verlagsgesellschaft, m.b.h., Birkenwaldstrass 44, Stuttgart N., Germany.

"Chemical studies on the herring (Clupea harengus). IX--Preliminary gas-chromatographic study of volatile sulphur compounds produced during the cooking of herring," by R. B. Hughes, article, Journal of the Science of Food and Agriculture, vol. 15, May 1964, pp. 290-292, printed. Society of Chemical Industry, 14 Belgrave Sq., London SW1, England.

Free Amino Acids in Hard Herring Roe. Variation during the Ripening Process, by Egil T. Gjessing, Fiskeridirektoratets Skrifter Serie Teknologiske Undersøkelser, vol. 4, no. 7, 1963, 8 pp., printed. Fiskeridirektoratets, Bergen, Norway.

"Markierungen an Rügenschon frühjahrsheringen in jahre 1961" (Tagging Rugen spring herring in 1961), by Karl Anwand, article, Internationale Revue der Gesamten Hydrobiologie, vol. 48, no. 2, 1963, pp. 315-323, printed in German. Internationale Revue der Gesamten Hydrobiologie, Berlin, Germany.

"Maturation of fatty Pacific salted herring packed in refrigerator drawers," by L. K. Bukhriakova, article, Sb. Rabot. po Biol. Takhn. Rybolovstva i Takhnol. Tikhookeansk. Nauchno-issledovatel'skii Institut Morskogo Rybnogo Khoziaistva i Okeanografii, no. 1, 1960, pp. 74-81, printed in Russian. Institut Morskogo Rybnogo Khoziaistva i Okeanografii, Verkh. Krasnosel'skaia Ul. No. 17, Moscow, U.S.S.R.

Poissons du Quebec: Album No. 7, Le Hareng (Fishes of Quebec; Album No. 7, the Herring), by Jean-Marie Roy, 16 pp.; 23 pp. translation, illus., printed, French and English, respectively, 1964, 50 Canadian cents. Division des Pêcheries, Ministère de l'Industrie et du Commerce, Quebec, Que., Canada. Discusses the herring's systematic position, common names, distinctive characteristics, habitat, size and weight, sex characteristics, spawning, food, and growth. Also covers herring enemies; geographical distribution; fishing methods--gill-net, drift-net, weir fishing, boat seine, and herring trap; importance of the Quebec fishery; and utilization of the catch.

"The question of the origin of betabacteria (lactobacteria) in marinated herring," by K. Priebe, article, Archiv fur Lebensmittelhygiene, vol. 13, no. 12, 1962, pp. 278-281, printed in German. Verlag M & H Schaper, Grazer Str., 20, Hannover, Germany.

Review of Canadian Herring Fishery and Research in the ICNAF Area, 1963, by S. N. Tibbo, Manuscript Report Series (Biological) No. 791, 4 pp., printed, 1964. Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.

"Volatile acids as basis for estimating suitability of fish for consumption. I--Salted herring," by J. Wierchowski and M. Severin, article, Roczniki Panstwowe-go Zakladu Higieny, no. 13, 1962, pp. 301-305, print-



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

ed in Polish with summaries in English and Russian. Panstwowy Zaklad Wydawnictw Lekarskich, ul. Chocimska, 22, Warsaw, Poland.

#### ICE:

"L'approvisionnement des bateaux de pêche en glace hydrique" (Supplying fishing boats with water ice), by A. d'Oiron, article, *Revue Generale du Froid*, vol. 41, no. 1, January 1964, pp. 27-34, illus., printed in French. Association Française du Froid, 29 Blvd. Saint-Germain, Paris (6<sup>e</sup>), France.

#### ICELAND:

Foreign Trade Regulations of Iceland, by Ann C. Holmes, OBR 64-107, 8 pp., printed, Sept. 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.) Iceland's import policy is closely allied with the operation of the fishery export industry. Her economy is highly dependent upon the maintenance of fish exports in order to pay for the importation of most necessities except some foods. Fishery products represent over 90 percent of Iceland's exports. The report discusses Iceland's trade policy; import tariff system; sales and other internal taxes; documentation; and labeling, marking, and packing requirements. Also covers special customs provisions; nontariff import controls; Iceland's export controls; United States foreign trade controls; and Government representation between the two countries.

#### ICHTHYOLOGY:

Anatomie der Fische (Anatomy of the Fish), by Wilhelm Harder, *Handbuch der Binnenfischerei Mitteleuropas*, vol. IIA, part 1 - 320 pp., part 2 - 123 pp., illus., printed in German, 1964, 94 DM paperback (about US\$23.50); 130 DM (about \$32.50) hardbound. E. Schweizerbart'sch Verlagsbuchhandlung (Nagelle u. Obermiller), Stuttgart, Federal Republic of Germany. The author, Dr. Wilhelm Harder, is well known to many American fishery biologists. He spent some time here in the United States working at several biological laboratories. In the forward to his present work he indicates that a detailed volume on the anatomy of the fish has not appeared in German since the work of Stannius in 1854. Accordingly, he has taken upon himself the task of producing a detailed volume on this subject. The volume is in two separate parts; text and illustrations, so that it is possible to put the illustrations alongside the corresponding text. The main chapter headings, under which considerable specific detail is given, are as follows: basic elements of the organs, cells, and tissues; skeleton--skull, fins, skin structure, teeth; muscle structure; body cavity, digestive tract; urinary and sexual organs; circulatory system--heart, lymph nodes; organs of inner secretion; respiratory system; sensory organs; nervous system; and skin. There are 246 pages of text in German in the first part which also includes 13 tables and literature citations. The second part contains about 266 illustrations with 19 tables. Zoologists and zoological institutes, scientific aquaria, libraries of aquarium societies, biologists, fishery scientists will find this book of considerable value.

--W. H. Stolting

#### INDIA:

Fish Technology Newsletter, vol. 5, no. 2, July 1964, 17 pp., illus., processed. Central Institute of Fisheries Technology, Ernakulam, India. Includes, among others; articles on: "Canning of mackerel in oil;" "Fishery products of commerce. III--Fish maws;" "Design of a 85'-four seam trawl net for 120-130 hp. trawler;" and "Simple Techniques for Estimating Certain Characteristics of Otter Trawl Net in Operation."

Indian Seafoods, vol. 2, no. 1, June 1964, 30 pp., illus., printed. The Marine Products Export Promotion Council, Ernakulam, India. Includes, among others, articles on: "Council's activities--an assessment and prognosis;" "The Effect of prolonged storage in ice on prawn," by A. N. Bose; "Marine turtle fishery of India," by S. T. Chari; "Tuna long line operations in the west coast of India," by P. K. Eapen; "Export of shark fins;" "Exports of dried prawns from India during the years 1962 & 1963;" "Exports of marine products from India during the years 1962-63 & 1963-64;" "Exports of marine products from India during the months January to May 1963 and 1964;" "Exports of shark fins & fish maws from India during the years 1962 & 1963;" and "Exports of dried fish from India during the years 1962 & 1963."

#### INDIAN OCEAN:

"Le probleme de la peche dans le cadre de l'expédition océanographique internationale dans l'océan Indien" (The fishery problem in the International Indian Ocean Expedition plan), by E. Postel, article, *La Pêche Maritime*, vol. 43, no. 1038, September 1964, pp. 638-645, illus., printed in French, single copy 12 F (about US\$2.45). Les Editions Maritimes, 190, Blvd. Haussmann, Paris, France.

#### INDUSTRIAL PRODUCTS:

"Preparation of fish concentrates for animals and birds," by A. P. Chernogortsev and V. I. Shenderyuk, article, *Chemical Abstracts*, vol. 60, June 8, 1964, 15064e, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### INTERNATIONAL COMMISSIONS:

International Commission for the Northwest Atlantic Fisheries, Statistical Bulletin for the Year 1962, vol. 12, 78 pp., illus., printed, 1964, C\$3. International Commission for the Northwest Atlantic Fisheries, Bedford Institute of Oceanography, P. O. Box 638, Dartmouth, N. S., Canada. This bulletin is divided into two parts: Part 1 summarizes statistics on fishery landings in the Convention area, 1952-1962; and Part 2 includes statistical tables dealing with the fisheries in 1962. The presentation of the basic statistical data again has been designed to place emphasis on area and month of fishing. Contains a summary of all landings by species group, country, and statistical subdivision; landings of cod, haddock, ocean perch, halibut, and flounder for each type of gear; landings of each species by subarea; and fishing effort and landings by country, gear, and subarea. Member countries include Canada, Denmark, France, Germany, Iceland, Italy, Norway, Poland, Portugal, Spain, U.S.S.R., United Kingdom, and the United States.

#### IOWA:

Quarterly Biology Reports, January, February, March 1964, vol. 16, no. 1, 61 pp., processed. Biology Sec-

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

tion, Fish and Game Division, State Conservation Commission, E. 7th and Court Sts., Des Moines, Iowa. The section on fisheries contains the following articles: "Pleasure boat numbers as compared to fishing boats on several northwest Iowa Lakes, 1961, '62 and '63," by Tom Moen; "A brief preliminary report on commercial channel catfish," by Roger Schoumacher; "A fishery investigation of five Missouri River ox-bow lakes during 1963," by Bill Welker; and "Coralville Reservoir fisheries investigations, 1963. Part II--Limnology and fish populations," by Jim Mayhew.

#### IRRADIATION PRESERVATION:

"Perishables you can store on the shelf," article, *Business Week*, no. 1832, October 10, 1964, pp. 120, 123-124, illus., printed, single copy 50 cents. McGraw-Hill, Inc., 330 W. 42nd St., New York, N. Y. 10036. Nuclear irradiation is making it possible to keep some foods, particularly meat and fish, longer than ever before--often even without use of refrigeration. Recently the first semicommercial irradiator in the country was dedicated at the U. S. Bureau of Commercial Fisheries' Technological Laboratory in Gloucester, Mass. Fish is a good prospect for irradiation to prevent spoilage since bacteria normally cause fish to decay quickly; irradiation destroys the bacteria. The new irradiator at Gloucester is equipped to irradiate one ton of fish an hour. Bureau of Commercial Fisheries' researchers have been irradiating haddock as well as mackerel and lobster. On ice, the fish will keep for about 10 days; limited radiation treatment makes it possible to extend refrigerated shelf life to 30 days. The fishing industry has a big potential for market expansion, particularly in inland areas, if only its product could be made less perishable.

"Radiation preservation of marine products: U.S.A. E.C. Programme," by E. Machureck, article, *Irradiation des Aliments (Food Irradiation)*, vol. 4, April-June 1964, pp. A2-A7, illus., processed, European Information Centre for Food Irradiation, P. O. Box No. 6, GIF-sur-Yvette (S.-et-O.), France. This program is directed to those marine products showing the most promise as evaluated by the Massachusetts Institute of Technology. The original list included soft-shell clams, haddock, clams, shrimp, Pacific crab, and flounder. Recently, freshwater perch and smoked chub have been added. Primary emphasis has been on the determination of process technology and the establishment of wholesomeness and safety. If large-scale tests bear out the very successful laboratory results, it is hoped that, through the U. S. Department of the Interior, the National Fisheries Institute, and others, industry may be induced to attempt commercialization.

"Review of the United States Army irradiated food wholesomeness program," by M. E. MacDowell and N. Raica, article, *Nuclear Science Abstracts*, vol. 17, 1963, 38736, printed. United States Atomic Energy Commission, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

#### JAPAN:

Bulletin of the Faculty of Fisheries, Nagasaki University, no. 15, December 1963, 117 pp., illus.,

printed in Japanese with English abstracts. The Faculty of Fisheries, Nagasaki University, Nagasaki, Japan. Contains, among others, these articles: "On diethylene glycol succinate monoester as a stationary liquid phase in gas-chromatography of methyl esters of fatty acids and on the chromatographic study of horse-mackerel oil," by Shojiro Miyahara and Yoshiaki Tabata; "On the presence of tyrosinase in the byssus or mucus gland of the bivalves," by Buhei Zenitani and Tadataka Taniguti; "Analysis of fish finder records. III--On a dynamical study of external force on the tuna longline and control of the hook depth," by Keishi Shibata and Shigeaki Yada; "IV--Report on the deep scattering layers and tuna food," by Keishi Shibata.

Bulletin of the Faculty of Fisheries, Nagasaki University, no. 16, March 1964, 138 pp., illus., printed in Japanese with English summary. The entire issue consists of the article: "Ecological studies on marine fouling animals," by Takesi Kazihara.

Bulletin of the Japanese Society of Scientific Fisheries, vol. 30, no. 4, April 1964, 79 pp., illus., printed in Japanese and English. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan. Includes, among others, these articles: "Annual variation of longline catch-rate of big-eyed tuna in the eastern Pacific tropical waters," by Jun Nakagome and Hiroataka Suzuki; "Fundamental studies on the production of alginic acid. II--Examination of the condition of acid treatment; III--On the change of membrane potential of algae by acid treatment," by Yuzo Harada; "Studies on muscle of aquatic animals. XXXXII--Species difference in fish actomyosin (Part 2)--Relation between heat-denaturing point and species," by Tadao Ueda, Yutaka Shimizu, and Wataru Simidu; "Biochemical studies on L-Ascorbic acid in aquatic animals. III--Biosynthesis of L-Ascorbic acid by carp," by Shizunori Ikeda and Mamoru Sato; and "Studies on the nutritive values of lipids. XIV--Preliminary experiments of using the fatty acids fraction of sperm whale oil and methyl ester of rice bran oil for animal feed," by Takashi Kaneda and Kimie Arai.

Contributions from the Department of Fisheries and the Fishery Research Laboratory, Kyushu University, no. 9, 1963, 125 pp., illus., printed in Japanese and English, July 1964. Department of Fisheries and Fishery Research Laboratory, Kyushu University, Fukuoka, Japan. Includes, among others, these articles: "Sargassum vegetation growing in the sea around Tsuyazaki, North Kyushu, Japan," by T. Yoshida, T. Sawada, and M. Higaki; "Inactivation of chlortetracycline in muscle tissue and method for its stabilization," by T. Tomiyama and K. Kitahara; "The reactions of fishes to toxic substances. III--The reactions of fishes to hydrogen ion," by S. Ishio; "Studies of the external mucous substance of fishes. VIII--Quantitative analysis of the mucus-polysaccharide from some fishes. 2--Basic and acidic sugar composition," by N. Enomoto, H. Nagatake, and Y. Tomiyasu; "A practical method of detecting boric acid added as preservatives to Kamaboko (fish jelly product)," by N. Enomoto and Y. Tomiyasu; "Lipid oxidation and protein denaturation in freeze-dehydrated fish," by M. Toyomizu, Y. Matsumura, and



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

Y. Tomiyasu; "Discoloration of Lyophilized fish," by M. Toyomizu, F. Orita, and Y. Tomiyasu; and "Discoloration of marine animal products. II--Review," by M. Toyomizu and Y. Tomiyasu.

Hokusuishi Geppo (Hokkaido Fisheries Experimental Station Monthly), vol. 21, no. 9, September 1964, 48 pp., printed in Japanese. Hokkaido Fisheries Experimental Station, 238-banchi, Hamanaka-cho, Yoichi, Hokkaido, Japan. Includes, among others, these articles: "Eastern Bering Sea herring; plans concerning the reproduction of White Sea herring;" and "Fishing gear and fishing methods employed in the Soya region," by T. Takahashi and T. Fukuda.

--Lorry M. Nakatsu

Japan's Fishery Industry, 19 pp., illus., printed, April 1964. Japan Fisheries Association, Tokyo, Japan. Discusses briefly recent development of the Japanese fisheries industries; types of fisheries--whaling, tuna, salmon, factoryship crab, saury lift-net, purse-seine, squid angling, and coastal; aquiculture--pearl, oyster, fresh-water fish, and salt-water fish; conservation of marine resources--survey and research, regulations on fisheries, and expansion of culture activities; improvement of fisheries technique; fishing vessels and ports; and fishermen's organizations.

Japan's World Success in Fishing, by Georg Borgstrom, 312 pp., illus., printed, 1964, £2 15s. plus postage 2s. 6d. (\$8.25). Fishing News (Books) Ltd., 110 Fleet St., London EC4, England. Food from the sea is essential in order for Japan to feed its population of 90 million. In addition, Japan has developed an important export business for fishery products and that trade is important as a source of earning foreign currency to pay for her imports. There has been a great deal written about Japan's efforts and fisheries, but now this book brings the story together into one place. The whole field of Japanese fishery activities from farming fish in their inland sea to fishing by their large fleets of motherships and factoryships all over the world is covered in this book. The author expertly describes the background of Japan's amazing success in fishing all the oceans of the world.

Discussed is the over-all master plan of governmental guidance implemented practically by private enterprise. Included in the plan was the building of mothership fleets, supported by attendant catchers, factoryships for processing fishery products in distant waters, refrigerated carrier vessels for transportation to domestic and foreign markets, the erection of shipbuilding yards, net-making factories and food-processing equipment, and the establishment of bases and links with countries overseas.

The extensiveness of Japan's marine fishing fleet is easily realized when one considers that she has over 188,000 vessels engaged in marine fishing with a gross tonnage of 1,609,709. Her foreign ramifications are revealed by the fact that 200 of her vessels are foreign-based, and overseas fishery enterprises are either planned or operating in over 50 countries. Also, 3 million people directly depend upon Japan's fishing industry for their livelihood. Up to a year or two ago, Japan was the leading producer of fishery products in the world.

In his introduction the author establishes the theme that "the world is engaged in a global war for food and that the oceans are in the front field of this great battle." Revealed by the author are the agreements and disagreements Japan has had with the Soviets since the beginning of the 20th century. Chapters in the book deal with the main features of Japanese fisheries, the processing industry, specialized processing, seaweeds, the international and domestic markets, and regional and global fisheries. One chapter is devoted to the Tsushima long-term plan which, according to the author, was primarily responsible for the rapid development of Japanese fishery enterprises and world-wide exploitation of the oceans. There are chapters dealing with the development of motherships and floating factories; the incentive to increase the fishery catch from the Pacific, the Indo-Pacific area, the Atlantic, the Mediterranean, the Caribbean; the exploitation of whaling and sealing; exploratory fishing; education and research; special international commissions; present international tensions; and global aspects. Covered are postwar trends and technical advances made in the vessels used and the equipment and gear with which they are fitted; also some information about Japan's three largest fishing firms with interests in every segment of the fishery industries. He shows catches and landings of tuna in Japan proper and overseas, and discusses the profitability of motherships as compared with overseas bases. In the last chapter the author makes a number of pertinent observations, discusses the economics, and comments on the relationship between man and the resources of the sea.

Photographs, maps, and an adequate index add to the book's usefulness. Among the many sources the author used to obtain information, he cites the U. S. Fishery Market News and Commercial Fisheries Review. Anyone interested in any aspect of the world's fisheries and Japan's, in particular, will find this book enlightening and indispensable. Those interested in foreign trade will find much of value in it.

--Joseph Fileggi

New Fishing Boat in Japan, 2nd Edition, 130 pp., illus., printed in Japanese with English table of contents, August 1964. The Fishing Boat Association of Japan, Tokyo, Japan. Presents information on each steel and wooden fishing vessel classified as fisheries training boat, fisheries research boat, oceanographic research vessel, fisheries inspection boat, refrigerated fish carrier, refrigerated fish factoryship, stern trawler, small trawler, tuna long-line boat mothership, tuna long-line fishing boat, skipjack pole and line fishing boat, purse seiner fish carrier, salmon drifter, and cod long-line fishing boat. Includes a photograph of each vessel.

Technical Report of Fishing Boat, No. 18, printed in Japanese with English abstracts. Fishing Boat Laboratory, Production Division, Fisheries Agency, Ministry of Agriculture and Forestry, Kasumigaseki, Chiyodaku, Tokyo, Japan.

JORDAN:

Foreign Trade Regulations of Jordan, by Jackson B. Hearn, OBR 64-115, 8 pp., printed, September 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For

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

sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Jordan's trade controls are applied largely for balance of payments and revenue purposes and are designed to adjust imports to the market requirements of local industry. In addition to trade policy, the report discusses import tariff system, documentation, and labeling and marking requirements. Also covers special customs provisions, nontariff import controls, Jordan's export controls, United States foreign trade controls, and Government representation between Jordan and the United States.

#### LATIN AMERICAN FREE TRADE ASSOCIATION:

"LAFTA 4th annual session now considering further 9-member tariff reductions," article, International Commerce, vol. 70, no. 43, October 26, 1964, p. 15, 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.) Discusses the Fourth Annual Session of the Conference of the Latin American Free Trade Association (LAFTA), opening October 20, 1964; and meeting to negotiate further tariff cuts among the 9-member organization and to determine certain policy questions. The 3 previous conference meetings resulted in some 8,200 tariff concessions. Under the Treaty of Montevideo of 1960, which established the LAFTA organization, members obligated themselves to lower trade barriers by 8 percent in relation to barriers to third countries during each annual meeting on the national schedules. The Secretariat reported that there was tentative agreement on a list of items accounting for about 26 percent of intra-LAFTA trade.

#### LOUISIANA:

10th Biennial Report, 1962-63, 211 pp., printed, 1964. Louisiana Wild Life and Fisheries Commission, Wild Life and Fisheries Bldg., 400 Royal St., New Orleans 16, La.

#### MALAWI:

Annual Report of the Department of Game, Fish and Tsetse Control for the Year 1962, Part I, 55 pp., processed, 1964, 4s. (about 55 U. S. cents). Government Printer, Zomba, Malawi. A report by the newly-independent Republic of Malawi, formerly the British dependency of Nyasaland, in southern Africa. The section on fisheries discusses the state of the fish stocks, large-scale fishery under license, small-scale fishery not subject to license, the fish trade, development work, training and promotion, and experimental work. Also covers fisheries research, trout fishing, and fish farming. Included are tables showing landings by gear and by species, fishery products exports, nets used in the subsistence fishery, average catch per haul, catch of more important species in Lake Nyasa, and trout landings.

#### MARINATED FISH:

"Lactic acid bacteria in fish marinades," by V. Meyer, article, Zentralblatt für Bakteriologie, Parasitenskunde, Infektionskrankheiten und Hygiene, vol. 184, 1962, pp. 296-301, printed in German. Gustav Fischer Verlag, Villengang 2, Jena, Federal Republic of Germany.

#### MARINE FISHERIES:

Ocean Fisheries, Pre-Publication Issue, July 1964, 32 pp., illus., printed. Ocean Fisheries, Circulation Department, 500 Howard St., San Francisco, Calif. 94105. The pilot issue of a new periodical which will commence quarterly publication in 1965 and which will seek to report the advancing, expanding fisheries with notable potential throughout the world. This issue contains these articles: "Coastal fisheries jurisdiction and resources of the continental shelf," by D. F. Miller; "Prodigious Peru--4-month fish meal output far ahead of 1963 record," by Charles S. Sinclair; "Iceland--world's first purse seiner with active rudder and bow-thruster," by W. Nitter Egenaes; "Mexico--moves mightily to reap the sea;" "Japan--Kanagawa freezer designed to compete for tuna trade," by Kenji Sakai; "1964 international notes of a fishery consultant," by Borti Petrich; "Strait of Magellan--centolla crab freezing promising," by Dietrich Angerman; "Australia--1963-64 catch of tuna sets up a new record," by R. M. Fowler; and "City of Tacoma--last word in tuna seiners."

#### MARINE FOULING:

Marine Fouling and Its Prevention, Woods Hole Oceanographic Institution Contribution No. 580, 396 pp., illus., printed, 1952, \$10. United States Naval Institute, Annapolis, Md. This book is divided into three parts. Part I, problems of fouling, covers the effects of fouling, and ship resistance. Part II, biology of fouling, contains chapters on the fouling community, temporal sequences and biotic successions, the seasonal sequence, quantitative aspects of fouling, geographical distribution, relations to local environments, the principal fouling organisms, and species recorded from fouling. Part III, prevention of fouling, includes chapters on the history of prevention of fouling, the invention of protective devices, factors influencing the attachment and adherence of fouling organisms, the prevention of fouling with toxics, the physical chemistry of compounds of copper and mercury and their interactions with sea water, and mechanisms of release of toxics from paints. Also includes chapters on the dissolution of the matrix and its ingredients, characteristics of antifouling coatings, the design of antifouling paints, the testing of antifouling paints, the fouling of metallic surfaces, and interaction of antifouling paints and steel.

#### MASSACHUSETTS:

Annual Report, Fiscal Year July 1, 1962-June 30, 1963, 74 pp., illus., processed, September 1, 1963, 22 cents. Division of Marine Fisheries, Department of Natural Resources, 15 Ashburton Pl., Boston 9, Mass.

#### MAURITANIA:

"La Mauritanie n'est pas le Perou" (Mauritania is not Peru), by Georges Freris, article, France Peche, no. 87, September 1964, pp. 48-51, illus., printed in French, single copy 2.5F (about 50 U. S. cents). France Peche, Boite Postale, Lorient, France.

#### MENHADEN:

Some Peculiarities in Menhaden Morphology - BREVO-ORTIA TYRANUS (Latrobe), by E. E. Gusev, 4 pp., processed, August 1964. (Translated from the Russian, Contributions to Commercial Fisheries Research of the Arctic Basin, no. 2, 1964, pp. 13-16.) Marine Biological Laboratory, Woods Hole, Mass.



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

## MEXICO:

The following publications, printed in Spanish, are available from Direccion General de Pesca e Industrias Conexas, Secretaria de Industria y Comercio, Mexico, D. F.

Algunos Aspectos Biologicos del Pescado Blanco del Lago de Patzcuaro, Mich. (CHIROSTOMA ESTOR Jordan, 1879) (Some Biological Aspects of the White Fish of Patzcuaro Lake, Mich.--Chirostoma estor Jordan, 1879), by Aurelio Solorzano Preciado, 12 pp., illus., 1963.

Breve Reseña sobre las Principales Artes de Pesca Usadas en Mexico (Brief Review of the Principal Methods of Fishing Used in Mexico), by Pedro Mercado Sanchez, 79 pp., illus., 1959.

Contribucion al Conocimiento de la Biologia del Charal Prieto del Lago de Patzcuaro, Mich. (CHIROSTOMA BARTONI Jordan y Evermann, 1896) (Contribution to the Knowledge of the Biology of the White Fish of Patzcuaro Lake, Mich.--Chirostoma bartoni Jordan and Evermann, 1896), by Aurelio Solorzano Preciado, 70 pp., illus., 1961.

Investigaciones Ictiologicas en la Costa de Chiapas--Lista de Peces Colectados en las Capturas Camaroneras (Agosto y Septiembre de 1959 y Abril, Mayo y Junio de 1960) (Ichthyological Investigations along the Chiapas Coast--List of Fish Collected in the Shrimp Landings--August and September 1959 and April, May, and June 1960), by Ernesto Ramirez H., Guillermo Carrillo, and Daniel Lluch B., 15 pp., 1964.

Los Peces del Valle de Mexico (The Fishes of the Valley of Mexico), by J. Alvarez del Villar and Leopoldo Navarro G., 62 pp., illus.

The following publications, all part of the series: "Trabajos de Divulgacion," processed in Spanish, are available free from Direccion General de Pesca, Secretaria de Industria y Comercio, Mexico, D. F.

El Problema Pesquero Nacional (The National Fishery Problem), by Rodolfo Ramirez Granados, vol. I, no. 3, 45 pp., June 1959 (reprinted July 1963).

Extracto sobre la Biologia de los Camarones del Genero PENAEUS en Aguas Mexicanas (Summary of the Biology of the Shrimp of the Genus Penaeus in Mexican Waters), by Pedro Mercado Sanchez, vol. I, no. 5, 19 pp., illus., August 1959 (reprinted May 1963).

El Aprovechamiento del Pescado, Recurso Olvidado (Utilization of the Fishery, Forgotten Resource), by Juan Manuel Tibon, vol. I, no. 6, 15 pp., September 1959 (reprinted July 1963).

Las Pruebas Quimicas en la Determinacion de la Frescura o Calidad en la Carne de Pescado (A Chemical Method for Determining the Freshness or Quality of Fish), by Manuel Calvo Mendoza, vol. II, no. 11, 9 pp., illus., December 1960 (reprinted August 1963).

Clave para los Scienidos (Sciaenidae: Curvinas, Berugatas, etc.) del Pacifico Oriental (Key to the

Sciaenids--Sciaenidae: Croaker or Corbina, Berugate, etc.--of the Eastern Pacific), by J. D. McPhail, vol. II, no. 12, 28 pp., illus., December 1960, reprinted December 1963, (Translated from the English, Museum Contribution No. 2, Institute of Fisheries, University of British Columbia, Vancouver, Canada, November 1958.)

Posibilidades Ostricolos de Mexico (Possibilities of Oyster Culture in Mexico), by Maria Luisa Sevilla, vol. II, no. 13, 14 pp., December 1960 (reprinted July 1963).

Guion para el Estudio de los Recursos Pesqueros de Mexico (Guide to the Study of the Fishery Resources of Mexico), by Maria Luisa Sevilla, vol. III, no. 22, 26 pp., illus., January 1962.

Contribucion al Estudio del Pulpo (OCTOPUS VULGARIS Lamarck) de la Sonda de Campeche (Contribution to the Study of the Octopus--Octopus vulgaris Lamarck--of Campeche Sound), by Manuel J. Solis Ramirez, vol. III, no. 24, 33 pp., illus., April 1962.

Plan de Trabajo a Desarrollar por las Estaciones del Instituto Nacional de Investigaciones Biologico-Pesqueras (Work Plan for Improving the Status of the National Institute of Fishery Biological Investigations), by Rodolfo Ramirez G., Hector Chapa Saldana, and Mauro Cadenas F., vol. IV, no. 32, 31 pp., September 1962.

Clave Dicotomica para la Determinacion de los Ordenes de Crustaceos (Dichotomous Key for the Determination of the Orders of Crustaceans), by Federico Bonet Marco, vol. IV, no. 39, 87 pp., January 1963 (reprinted November 1963).

Principales Lugares para Practicar la Pesca Deportiva en Aguas Dulces, Salobres y Maritimas de la Republica Mexicana (Principal Places for Sport Fishing in Fresh, Brackish, and Salt Waters of the Republic of Mexico), vol. IV, no. 40, 13 pp., January 1963.

Langostas (Crustacea Decapoda) Identificacion, Distribucion, Comercio (Spiny Lobster--Crustacea Decapoda--Identification, Distribution, and Trade), by Fenner A. Chace Jr. and William H. Dumont, vol. V, no. 46, 42 pp., March 1963.

Tecnologia Aplicada en la Elaboracion de Alimentos a Partir de Material Marino (Technology Applied to the Manufacture of Food from Marine Products), by Carlos E. Perez Bacera, vol. V, no. 47, 13 pp., March 1963.

Aspectos Generales sobre las Ranas y su Cultivo (General Observations on Frogs and Their Cultivation), by Federico Aguilar Ibarra, vol. V, no. 49, 23 pp., April 1963.

Jamon y Salchicha de Pescado (Fish Ham and Sausage), by K. Ishiguro, vol. V, no. 50, 26 pp., illus., May 1963. (Translated from the Japanese, Chiba Fishing Net Co., Ltd., Tokyo, Japan.)

Claves de Identificacion para Cangrejos Cancroideos de America (Key to Identification of Cancroid Crabs of America), by Mary J. Rathbun, vol. VI, no. 51, 86 pp., illus., May 1963. (Translated from the English,

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

The Cancroid Crabs of America of the Families Euryalidae, Portunidae, Atelecyclidae, Cancridae and Xanthidae, Bulletin No. 152, U. S. National Museum, Washington, D. C., 1930.)

Notas sobre Algunos Peces de Importancia Comercial en los Estados de Tamaulipas y Veracruz (Notes on Some Fish of Commercial Importance in the States of Tamaulipas and Veracruz), by Ernesto Ramirez H., vol. VI, no. 52, 13 pp., May 1963.

Las Algas Marinas como Recurso Natural Explotable. La Necesidad de Realizar en Mexico Estudios Sistemáticos y Bioquímicos de Este Recurso (Marine Algae as a Natural Exploitable Resource. The Need to Conduct in Mexico Systematic and Biochemical Studies of this Resource), by Sergio A. Guzman del Proo, vol. VI, no. 53, 10 pp., May 1963.

Anteproyecto para el Estudio de las Posibilidades Ostrícolas en el Estado de Nayarit (Preliminary Plans for the Study of the Possibilities of Oyster Culture in the State of Nayarit), by Federico Aguilar Ibarra, vol. VI, no. 55, 12 pp., May 1963.

Prospeccion Acerca de las Tortugas Marinas de Mexico (Prospects with Regard to the Marine Turtles of Mexico), by Aurelio Solorzano P., vol. VI, no. 54, 14 pp., illus., May 1963.

Difusion Biologica Pesquera y Conservacion (Diffusion of Fishery Biology and Conservation), by Mauro Cardenas Figueroa, vol. VI, no. 56, 21 pp., May 1963.

Notas sobre las Investigaciones del Camaron en el Noroeste y los Resultados Practicos Obtenidos (Notes on the Investigations of the Shrimp of the Northeast and the Practical Results Obtained), by Federico Aguilar I., vol. VI, no. 57, 5 pp., May 1963.

Asesoria Tecnica y Cientifica para el Desarrollo de las Actividades Pesqueras en Nayarit (Technical and Scientific Advice for the Development of Fishing Activities in Nayarit), by Federico Aguilar Ibarra, vol. VI, no. 58, 52 pp., illus., May 1963.

Extractos de Tecnologia Pesquera en Sistema de Tarjetas (Fishery Technology Abstract Card System), by M. E. Stansby, K. L. Osterhaug, and F. Bruce Sanford, vol. VI, no. 59, 41 pp., June 1963. (Translated from English, Fishery Leaflet 232, U. S. Fish and Wildlife Service, Washington, D. C., July 1956.)

El Carrete Mecanico de Mano y la Ecosonda en la Pesca del Huachinango (The Mechanical Hand Reel and Sonar in the Huachinango Fishery), by Dilio Fuentes Castellanos, vol. VI, no. 60, 20 pp., illus., May 1963.

La Pesqueria de Langostas del Pacifico Mexicano (The Spiny Lobster Fishery of the Mexican Pacific), by Hector Chapa Saldana, vol. VII, no. 61, 17 pp., illus., June 1963.

Fichas Bibliograficas en Orden Numerico de la Serie Trabajos de Divulgacion, Comprende: del Numero 1, al Numero 80 (Bibliographic File Cards in Numerical Order of the Series "Trabajos de Divulgacion" Covering Number 1 through Number 80), Com-

plied by Fidel Cano Elias, vol. VIII, no. 79, 9 pp., December 16, 1963.

Indice Alfabético de Materias de la Serie Trabajos de Divulgacion Comprende del Numero 1, al Numero 80 (Alphabetical Subject Index of the Series "Trabajos de Divulgacion" Covering Number 1 through Number 80), compiled by Fidel Cano Elias, vol. VIII, no. 80, 12 pp., December 17, 1963.

#### MINK RATIONS:

"Trials with different amounts of Icelandic cod waste (from fillets and trimmings) in feeds for young mink," by G. Jorgensen, article, Dansk Pelsdyravl, vol. 24, 1961, pp. 164-166, printed in Danish, Dansk Pelsdyravl, Sdeasy 8, Copenhagen, Denmark.

"Trials with redfish (Sebastes marinus) for young mink," by G. Jorgensen, article, Dansk Pelsdyravl, vol. 25, 1962, pp. 271-274, printed in Danish.

#### MOLLUSCS:

Distribution and Variation in Abundance of Benthic Molluscs in the Konfederatka Pool at Wyszogrod (Rozmieszczenie i Dynamika Liczebności Miecza-kow Dennyh na Lasze Wislanej Konfederatka Pod Wyszotrodem), by Anna Stanczykowska, OTS 63-11400, 13 pp., illus., processed, 1964, 50 cents. (Translated from the Polish, Ekologia Polska, vol. 8, no. 7, 1960, pp. 155-168.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### NATURAL RESOURCES:

World Prospectus for Natural Resources--Some Projections of Demand and Indicators of Supply to the Year 2000, by Joseph L. Fisher and Neal Potter, 78 pp., illus., printed, 1964, \$1.50. The Johns Hopkins Press, Baltimore, Md. 21218. In recent times the population explosion in the underdeveloped countries and very rapid increases in most of the more developed nations have led to a reawakening of concern about the capacity of the natural environment and its resources to sustain desired rates of economic growth. Science, technology, and the economic adaptation of their accomplishments are seen as pitted against the sheer increase of population, which in many less developed areas is now running at 3 percent a year. Continuation of this rate would mean a doubling every 24 years. Clearly the population problem is not simply one of numbers of people, but also of natural resources and how they are used. Information is presented on the question of resource adequacy, the case of the United States, world trends in resources, projections of resource demands, and reserves and alternate supply possibilities. The contribution which the world's fisheries can make to better diets has never been adequately explored, but it is undoubtedly large, state the authors.

#### NEW ZEALAND:

Report of the Marine Department for the Year Ended 31 March 1964, 53 pp., printed, May 7, 1964, 2s. (about 28 U. S. cents). R. E. Owen, Government Printer, Wellington, New Zealand. A large portion of this report is devoted to New Zealand's fisheries during 1963. Included is information on total quantity and value of fishery products marketed in calendar year 1963, spiny lobsters, fishing vessels and per-



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

sonnel, landings by species, methods of capture, landings by ports, exports and imports of fishery products, big-game fishing, fish-liver oil, and whaling. Also includes information on rock oysters, dredged oyster, whitebait fishing--1963 season, mussels, angling licenses, research and investigation, Fishing Industry Advisory Council, Freshwater Fisheries Advisory Council, Fishing Industry Board, and legislation pertaining to fisheries.

#### NORTH KOREA:

Economic Report on North Korea, No. 126 (For Establishment of Scientific System of Fisheries, TT: 64-41357j, 14 pp., processed, August 24, 1964, \$1. Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### NORWAY:

"Rogaland and the fisheries;" "Canned fish, a Stavanger speciality;" "Modernisation in canning;" "Canning machines;" "Dies for cans;" "Canning plant;" "Fish meal and oil plants," articles, Norway Exports, no. 3, Autumn 1964, pp. 41-43, illus., printed, Export Council of Norway, H. Heyerdahls Gate 1, Oslo 1, Norway. Discusses the fisheries of Rogaland in southwestern Norway. Fishermen in this area participate in the winter herring fishery, the North Sea trawl fishery, and the herring fishery off Iceland. Also important to the area are a canning laboratory and canning school. Included is information on the fish canning industry at Stavanger, where the industry commenced in 1841; the largest canning plant in Norway; a manufacturer of canning machines; a firm producing dies for the manufacture of aluminum and tinplate cans; a producer and exporter of fish canning equipment; and a fish meal and oil plant manufacturer.

#### NUTRITION:

Ocean Science and Human Protein Malnutrition Problems in Middle Africa, by Wilbert McLeod Chapman, 35 pp., printed, 1964, Institute of International Affairs, University of California, Berkeley, Calif.

#### OCEANOGRAPHY:

Geo Marine Technology, vol. 1, no. 1, November 1964, 62 pp., illus., printed, INTEL, Inc., 739 National Press Bldg., Washington, D. C. The first issue of a monthly technical periodical for ocean scientists. Intended principally as an effective medium of information exchange among those concerned with designing, engineering, and deploying systems in the total ocean environment. Contains the following articles: "Publishers note - What is GMT?" by Seabrook Hull; "Forum of the Institute of the Bent Trident"; "Ocean mining"; "Abstract - Methods of operation with anchored buoy stations"; "U.S.C. & G.S.," by E. John Long; "AGOR & post-AGOR," and "Space oceanography," by Seabrook Hull; "Search for materials data," by Walter F. Bohlen; "On Station (news)." Also an "Engineering reference file: Sea state chart - David Taylor Model Basin; Data sheet ads - cumulative index."

"Revival of oceanography in Germany," by Victor K. McElheny, article, Science, vol. 146, no. 3640, October 2, 1964, pp. 45-48, illus., printed, single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005.

Selected Articles on Oceanography, OTS 63-11107, 50 pp., illus., processed, 1964, 50 cents. (Translated from the Russian.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230. Contains articles on: "Oceanographic guideposts in reconnoitering for fish in marine fisheries," by M. V. Fedosov; "Relationship between the tangential wind stress over an agitated water surface and the velocity of wind," by R. N. Ivanov; "Latest results of hydrological study of the Kuroshio current from the viewpoint of fishery oceanology," by V. V. Leont'eva; "Role of vertical stability of layers in development of deep-sea upwelling phenomena," by Yu. G. Ryzhkov; "Contribution to the method of the sorting of benthic hydrobiological samples," by S. N. Torsukov; "Apparatus for determination of the coefficient of attenuation of directed light in the sea," by V. A. Timofeeva; "A simplified method for computing the heat balance of the sea surface," by Ya. A. Tyutnev; and "Interferometric determination of the salinity of sea water," by Yu. A. Vel'mozhnaya.

#### OCTOPUS:

"El extraordinario pulpo vulgar" (The extraordinary common octopus), by Blas Venegas, article, Iberica Actualidad Cientifica, vol. 42, nos. 25-26, July-August 1964, pp. 291-294, illus., printed in Spanish, single copy 30 ptas. (about 50 U. S. cents). Iberica Actualidad Cientifica, Apartado 759, Palau, 3, Barcelona 2, Spain.

#### O.E.C.D.:

"Financial support to the fishing industries," article, The OECD Observer, no. 12, September 1964, pp. 36-37, illus., printed, single copy 50 cents. The Organisation for Economic Co-Operation and Development, Publications Office, 2, rue Andre-Pascal, Paris (16<sup>e</sup>), France. Discusses a survey carried out recently by the OECD Fisheries Committee of the various systems of aid to fishing industries practiced by member countries--Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States. It considered whether they were acceptable, having regard not only to increased trade in sea products but also the need to maintain healthy competition between member country industries. It concluded by specifically recommending that any financial support considered to have harmful effects should be gradually reduced and eventually discontinued.

"L'O.C.D.E. demande qu'il soit mis fin à la plupart des aides financières accordées aux industries de la pêche maritime dans les pays membres" (The O.E. C.D. requests an end for most of the financial aids granted to marine fisheries of the member countries), article, La Pêche Maritime, vol. 43, no. 1038, September 1964, pp. 631-637, printed in French, single copy 12 F (about US\$2.45). Les Editions Maritimes, 190, Blvd. Haussmann, Paris, France.

#### OYSTERS:

Comments on the Occurrence and Nature of Certain Types of Coloration in Oysters, by G. Francis Beaven, Reference No. 64-4, 5 pp., processed, January 30, 1964. Natural Resources Institute, the University of Maryland, Chesapeake Biological Laboratory, Solomons, Md. The presence or development of any color

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

in shucked oysters other than that which is considered a normal oyster gray-white often arouses concern in the industry and may cause consumer rejection of the product. Few instances of color development can be prevented; most are a natural occurrence; and of those studied the quality of the oysters seldom is adversely affected. In order to reduce the instances of alarm expressed by those unfamiliar with normal development of color, this summary briefly describes instances of colored oysters or oyster liquor and the apparent cause where studies of the condition have been made. Everyone should recognize that many marked color differences among shellfish are normal, do not harm the animal or its value as food, and should not be an occasion of uncalled for alarm.

Crisis Ostricolas en Mexico y su Recuperacion (Oyster Culture Crisis in Mexico and its Recovery), by Fernando de Buen, 46 pp., illus., printed in Spanish, 1957. Direccion General de Pesca e Industrias Conexas, Secretaria de Marina, Mexico, D. F.

"Observations on the length-weight relationship of pearl oysters," by K. Alagaraja, article, Marine Biological Association of India Journal, vol. 4, no. 2, 1962, pp. 198-205, printed. Marine Biological Association of India, Marine Fisheries, P. O., Ramanathapuram Dist., South India.

"Preliminary observations on the growth of spat of the oyster Crassostrea gryphoides (Schlotheim)," by V. S. Durve and D. V. Bal, article, Marine Biological Association of India Journal, vol. 4, no. 2, 1962, pp. 206-213, illus., printed.

#### PACIFIC OCEAN:

Differentiation of Geographical Zones of Central Pacific (Scope and Basic Methods of Geographical Zonation) (Kharakteristika Geograficheskikh Zon Tsentral'noi Chasti Tikhogo Okeana--k Postanovke Problemy i Metoda Resheniya), by V. G. Bogorov, OTS 64-11100, 5 pp., processed, 1964, 50 cents. (Translated from the Russian, Biologiya Morya, Trudy Okeanograficheskoi Komissii Akademii Nauk SSSR, vol. 10, no. 4, 1960, pp. 3-7.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### PELAGIC FISH:

Review of Canadian Fishery and Research on Large Pelagic Fish in the ICNAF Area in 1963, by S. N. Tibbo, Manuscript Report Series (Biological) No. 792, 5 pp., printed, 1964. Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.

#### PERSIAN GULF:

Shrimp, Pearl and Sardines of the Persian Gulf, by Ismail Rostami, Publication No. 9, 68 pp., illus., printed in Persian and English, August 1964. Ahwaz Agricultural College, Molla Sani, Iran. Contains three articles on unrelated subjects. "A brief study on biology and the economic importance of shrimp," discusses the most important species (Penaeus setiferus, P. aztecus, and P. duorarum); hydrology of the Persian Gulf; gear used (otter-trawls, stake fences, nets, and shore seines); development of the fishery by Iranian, Kuwaiti, and Pakistani firms;

quantity and value of landings; and need for further exploratory fishing. "Pearl and its exploitation in the Persian Gulf," covers pearl formation and characteristics; mollusks producing pearls (Meleagrina margaritifera, M. vulgaris, and M. martensi); natural resources and control of their exploitation; fishing methods; pearl fishing regions (Red Sea, Persian Gulf, Ceylon, Madagascar, Japan, Australia, and Central America) and seasons; Japanese method of pearl culture; artificial pearls; and fisheries in the Persian Gulf. "Biology and fishing of sardines of southern Iran," presents information on species found in southern Iranian waters (Sardinella perforata, S. fimbriata, S. sindensis, S. melanura, and S. sirm); size, weight, and oil content; fishing grounds; utilization of catch; influence of temperature on fishing; fluctuation of populations; and landings (about 12,000 metric tons annually). Also included in the latter article are data on size and weight of sardines by sex, distribution of catch by districts, catch utilization, sea surface temperatures and percentage of catch, and delivery of raw sardines to the cannery.

#### PERU:

Foreign Trade Regulations of Peru, by Bruce B. Sever, OBR 64-99, 8 pp., printed, September 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.) Peru's trade policy is designed chiefly to stimulate national economic development and regional economic integration, to raise revenue for operating the Government, and to encourage international trade. The report discusses Peru's import tariff system; taxes; documentation and fees; labeling, marking, and packing; and special customs provisions. Also covers non-tariff import controls, Peru's export controls, United States trade controls, and Government representation between the two countries.

#### PESTICIDES:

"Herbicides residue in seafood. Determination of butoxyethanol ester of 2, 4-dichlorophenoxyacetic acid in shellfish and fish," by J. E. Coakley, J. E. Campbell, and E. F. McFarren, article, Journal of Agricultural and Food Chemistry, vol. 12, May-June 1964, pp. 262-265, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

The Identification and Measurement of Chlorinated Hydrocarbon Pesticides in Surface Waters, by A. W. Breidenbach and others, Public Health Service Publication No. 1241, 119 pp., illus., processed, September 1964. Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C. 20201.

"Pesticides get tangled in net of dead fish," article, Chemical Engineering, vol. 71, June 22, 1964, pp. 82, 84, 86, printed. McGraw-Hill Publishing Co., Inc., 330 W. 42nd. St., New York, N. Y. 10036.

Review of the Persistent Organochlorine Pesticides, Report by the Advisory Committee on Poisonous Substances Used in Agriculture and Food Storage, 67 pp., printed, 1964. Sales Section, British Information Services, 845 Third Ave., New York, N. Y., 10022.



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

"Toxic effect of DDT on fishes," by D. S. Mathur, article, 31st Annual Session of the National Academy of Sciences of India, Dehra Dun, 1962, p. 76, printed, National Academy of Sciences of India, Bangalore, India.

#### PLAICE:

"Red blood values in the plaice (*Pleuronectes platessa*)," by A. Preston, article, Chemical Abstracts, vol. 58, March 4, 1963, 4844a, printed, American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### POLAND:

"Landings in fishing harbours," article, Polish Maritime News, vol. 7, no. 73, September 1964, p. 14, printed, Polish Chamber of Foreign Trade, Maritime Branch, ul. Pulaskiego 6, Gdynia, Poland. In 1963, 209,691 tons of fish were landed in Poland, of which 161,958 tons were landed at the chief fishing ports. Since 1961, there has been an increase in frozen fish, cod and ocean perch fillets, fish meal, and cod-liver oil in the landings. In the past 4 years the number of new trawlers at the ports listed increased; in 1963 Gdynia had 7 factory trawlers.

1000 Lat Naszego Rybolowstwa (1,000 Years of Our Fisheries), by Andrzej Ropelewski, 160 pp., illus., printed in Polish, 1963. Wydawnictwo Morskie, Gdynia, Poland.

Selected Articles, OTS 63-11401, 9 pp., processed, 1964, 50 cents. (Translated from the Polish, Wiadomosci Parazytologiczne, vol. 5, nos. 405, 1959, pp. 459-462; 463-465; 467-468.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230. Includes the following articles: "Parasitological problems in Polish fishery," by E. Grabda and J. Grabda; "Discussion at the session of the Fishery Parasitology Section;" and "Summary of the discussion at the meeting of the Section of General and Fishery Parasitology."

#### POLLUTION:

Further Studies on the Introduced Asiatic Clam (CORBICULA) in Tennessee, by Ralph M. Sinclair and Billy G. Isom, 82 pp., illus., processed, November 1963, distribution limited, State of Tennessee Stream Pollution Control Board, Cordell Hull Bldg., Nashville, Tenn. 37219.

"The pollution of water by detergents," article, The OECD Observer, no. 12, September 1964, pp. 38-39, illus., printed, single copy 50 cents. The Organisation for Economic Co-Operation and Development, Publications Office, 2, rue Andre-Pascal, Paris, (16<sup>e</sup>), France.

The Toxicity to Fish of Mixtures of Poisons. I--Copper-Ammonia and Zinc-Phenol Mixtures, by D. W. M. Herbert, Reprint No. 447, 6 pp., printed, 1964. (Reprinted from Annals of Applied Biology.) Water Pollution Research Laboratory, Stevenage, Hertfordshire, England.

#### PORTUGAL:

"Relatório do Gremio dos Industriais de Conservas de Peixe do Centro" (Report of the Society of Central Fish Cannerys), article, Conservas de Peixe, vol. 19,

no. 222, September 1964, pp. 17-19, 21, 23-24, printed in Portuguese. Sociedade de Revista Conservas de Peixe, Lda., Regueirao dos Anjos, 68, Lisbon, Portugal.

#### POULTRY NUTRITION:

"Effect of fish meal from various sources on the growth of broiler chickens," by R. Fangauf, H. Vogt, and W. Penner, article, Chemical Abstracts, vol. 59, November 11, 1963, 11964g, printed, American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

"Influence of dietary menhaden oil on growth rate and tissue fatty acids of the chick," by Hardy M. Edwards, Jr. and J. E. Marion, article, Journal of Nutrition, vol. 81, October 1963, pp. 123-130, printed, American Institute of Nutrition, 36th St. at Spruce, Philadelphia 4, Pa.

"Methionine supplementation of practical broiler rations. I--The value of added methionine in diets of varying fishmeal levels; II--The value of added methionine in chick starter rations," by S. Bornstein and Bianka Lipstein, articles, British Poultry Science, vol. 5, May 1964, pp. 167-186, printed, Oliver and Boyd, Ltd., Tweeddale Court, 14 High St., Edinburgh 1, Scotland.

#### PRESERVATION:

Preservation of Fish, Torry Miscellaneous Paper No. 3, 7 pp., printed, 1959. Torry Research Station, Abbey Rd., Aberdeen, Scotland.

#### PROTEIN:

"Essential amino acids, tyrosine and cystine, content of purified proteins of Bombay fish," by S. R. Mankikar and K. Sohoni, article, Journal of the University of Bombay, Physical Science, vol. 29, pts. 3 and 5 (nos. 48-49), 1960-61, pp. 82-85, printed, University of Bombay, Fort Bombay, India.

"Influence of frying on the biological value of a fish protein," by J. A. Luge, O. Moreiras-Varela, and G. Varila, article, Anales de Bromatologia, vol. 15, 1963, pp. 179-185, printed in Spanish. Sociedad Espanola de Bromatologia, Ciudad Universitaria (Edificio Facultad de Farmacia), Madrid, Spain.

"Release of essential amino acids, tyrosine and cystine, from purified proteins of Bombay fish during digestion in vitro," by S. R. Mankikar and K. Sohoni, article, Journal of the University of Bombay, Physical Science, vol. 29, pts. 3 and 5 (nos. 48-49), 1960-61, pp. 86-89, printed, University of Bombay, Fort Bombay, India.

#### QUALITY:

"Freshness determination of fish meat by the distillation ratio of volatile acids. VIII--Form of the volatile acids in fish meat," by S. Asakawa, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 23, 1957-58, pp. 463-466, printed in Japanese, Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

"Frozen fish quality at consumer level," by W. J. Dyer, article, Canadian Fisherman, vol. 49, no. 6, 1962, pp. 62-63, 65, printed, National Business Publications Ltd., Gardenvale, Que., Canada.

"Further studies on refractometry as a means of estimating freshness of marine fish," by H. J. Wegner,

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

article, Archiv für Lebensmittelhygiene Insbesondere für Fleisch, Fisch, und Milchhygiene, vol. 13, 1962, pp. 90-91, printed in German. Verlag M. & H. Schaper, Grazer Strasse 20, Hannover, Federal Republic of Germany.

"A new electronic rapid method for determining freshness of seafish," by C. Henning, article, Zeitschrift für Lebensmittel-Untersuchung und -Forschung, vol. 119, no. 6, 1963, pp. 461-477, printed in German. J. F. Bergmann, Leopoldstrasse 175, Munich 23, Federal Republic of Germany.

Nota sobre Provas de Gustação para a determinação de qualidade de peixes cozidas (Note on Taste Tests for the Determination of Quality in Baked Fish), by Ko Watanabe, Contribuição's Avulsas do Instituto Oceanografico, Tecnologia No. 4, 12 pp., printed in Portuguese with English summary, 1962. Instituto Oceanografico, São Paulo, Brazil.

"Odor and assessment of fish freshness," by R. Spencer, article, Chemical Abstracts, vol. 58, April 10, 1963, 7298d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### RADIATION PASTEURIZATION:

"Pasteurization of fish by ionising radiation. A study of feasibility in the United Kingdom," by D. N. Rhodes, article, Irradiation des Aliments (Food Irradiation), vol. 4, no. 4, April-June 1964, pp. A8-A22, illus., processed. European Information Centre for Food Irradiation, P. O. Box No. 6, GIF-sur-Yvette (S.-et-O), France. It has been established on an experimental scale that packaged and irradiated fillets from 4-day-old fish will remain in first-class condition for between 10 and 20 days under the conditions likely to obtain in commercial practice. Such an extended storage life for fresh fish could be utilized in Britain to produce a much better commodity at the time of purchase by the consumer, especially in the inland centers of population. Such a process is likely to prove profitable to the fish trade because preparation and treatment would be centralized at the port of landing, and distribution arrangements could be made more efficient. The retailing of fish would be greatly affected by the introduction of clean and attractive packaging at standard weights, and sales promotion could be built up around a brand product. These factors combine in the concept of the irradiated product as presenting a new standard of quality in fish to the majority of consumers.

#### RADIATION SANITATION:

"Gamma radiation sanitation of fish and blood meals," by A. Van der Schaaf and D. A. A. Mossel, article, International Journal of Applied Radiation and Isotopes, vol. 14, 1963, pp. 557-562, printed. Pergamon Press, Inc., 122 E. 55th St., New York, N. Y. 10022.

#### REFRIGERATION:

"Refrigeration engineering in the utilisation of the sea's food resources," by V. P. Zaitsev, article, Fishing News International, vol. 2, no. 4, October-December 1964, pp. 392-400, illus., printed. Arthur J. Heighway Publications, Ltd., Ludgate House, 110 Fleet St., London EC4, England.

#### RESEARCH VESSEL:

"Das neue deutsche fischereiforschungsschiff" (The new German ship for fishery investigations), by J. Kuprianoff, article, Kaltetechnik, vol. 16, no. 1, January 1964, pp. 22-24, illus., printed in German. Verlag C. F. Müller, Karlsruhe, Federal Republic of Germany.

#### ROCKFISH:

Rockfish in the Gulf of Alaska, by T. G. Liubimova, 2 pp., illus., processed, 1963. (Translated from the Russian, Rybnoe Khoziaistvo, vol. 37, no. 9, 1961, pp. 27-30.) Biological Station, Fisheries Research Board of Canada, Nanaimo, B. C., Canada.

#### SALMON:

"Amino acids, free or as components of protein, and some B vitamins in the tissues of the Atlantic salmon, during spawning migration," by C. B. Cowey, K. W. Daisley, and Gwyneth Parry, article, Chemical Abstracts, vol. 58, March 18, 1963, 6029d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

Annual Fish Passage Report, North Pacific Division; Bonneville, the Dalles, McNary, and Ice Harbor Dams, Columbia and Snake Rivers, Oregon and Washington, 1963, 19 pp., illus., printed, 1964. U. S. Army Corps of Engineers, Portland, Oreg.

Bio-Statistical Material on Salmon Collected by the Soviet Section in 1960, 84 pp., printed. (Translated from the Russian.) Soviet-Japanese Commission for the Fisheries of the Northwest Pacific Ocean, Tokyo, Japan.

Changes in the Chemical Composition of the Flesh of the Svir Salmon in Relation to Spawning Migration (Izmenenie Khimicheskogo Sostava Myasa Svirskikh Lososei v Svyazi s Nerestovoi Migratsiei), by Z. E. Tilik, OTS 64-11098, 16 pp., processed, 1964, 50 cents. (Translated from the Russian, Izvestiya Vsesoyuznogo Instituta Ozerного i Rechnogo Rybnogo Khoziaistva (Leningrad), vol. 14, 1932, pp. 133-148.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Distribution and Relative Abundance of Pink Salmon in Offshore Waters, 1964, with Special Reference to Central British Columbia Stocks, by F. Neave and others, Manuscript Report Series (Biological) No. 786, 1 vol., printed, 1964. Biological Station, Fisheries Research Board of Canada, Nanaimo, B. C., Canada.

On the Mechanisms of Adaptation to Changes in Water Salinity by Sockeye Salmon (ONCORHYNCHUS NERKA Walb.), by M. G. Zaks and M. M. Sokolova, 13 pp., illus., processed, 1962. (Translated from the Russian, Voprosy Ikhtiologii, vol. 1, no. 2, 1961, pp. 333-346.) Biological Station, Fisheries Research Board of Canada, Nanaimo, B. C., Canada.

"Pink salmon in Ontario," by J. K. Reynolds, article, Ontario Fish and Wildlife Review, vol. 3, no. 3, Fall 1964, pp. 18-21, illus., printed. Department of Lands and Forests, Parliament Bldgs., Toronto 5, Ont., Canada. Discusses the planting of 300 pink salmon fin-



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

gerlings in Lake Superior in June 1956; their subsequent spawning; and the landing of a few of their descendants in 1959 and 1961. "Those biologists who had studied it most closely had come to believe that the pink salmon was most unlikely to be able to live and reproduce successfully without residing for a time in a marine environment," states the author.

"Proximate composition of silver salmon," by Neva L. Karrick and Claude E. Thurston, article, Journal of Agricultural and Food Chemistry, vol. 12, May-June 1964, pp. 282-284, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### SALMON AND STEELHEAD:

Salmon and Steelhead Fishing Map, 15 pp., illus., printed, 1964, Department of Fish and Game, 722 Capitol Mall, Sacramento 14, Calif.

#### SALT FISH:

El Salado de la Carne del Pescado--Un Metodo Sencillo y Economico para su Preservación (The Salting of Fish Flesh--A Simple and Economical Method for Its Preservation), by Leopoldo Navarro Galindo, 44 pp., illus., printed in Spanish, 1959. Direccion General de Pesca, Secretaria de Industria y Comercio, Mexico, D. F.

#### SARDINES:

L'Absorption du Sel et sa Diffusion dans la Conserve de Sardines a l'Huile (The Absorption of Salt and its Diffusion in Canned Sardines in Oil), by R. Meese-maecker and Y. Sohler, 8 pp., illus., printed, (Reprinted from Revue de la Conserve, April-May 1964.) Federation des Industries de la Conserve au Maroc, Laboratoire, 70, Allée des Jardins, Ain Zoren, Sebaa, Morocco.

"Biological value of the proteins of fresh and canned sardines," by G. Varela, A. Pujol, and O. Moreiras-Varela, article, Anales de Bromatologia, vol. 15, no. 1, 1963, pp. 117-125, printed in Spanish. Sociedad Espanola de Bromatologia, Ciudad Universitaria, Edificio Facultad de Farmacia, Madrid, Spain.

#### SEA LAMPREY:

"The six hemoglobins of the sea lamprey (Petromyzon marinus)," by Nevenka M. Rumen and Warner E. Love, article, Archives of Biochemistry and Biophysics, vol. 103, October 1963, pp. 24-35, printed. Academic Press Inc., 111 Fifth Ave., New York, N. Y. 10003.

Synergism of 5, 2'-Dichloro-4'-Nitro-Salicylanilide and 3-Trifluorimethyl-4-Nitrophenol in a Selective Lamprey Larvicide, by John H. Howell, Technical Report No. 8, 31 pp., printed, 1964. Great Lakes Fishery Commission, Natural Resources Bldg., University of Michigan, Ann Arbor, Mich.

#### SEALS:

An Evaluation of Existing Census Methods for the White Sea Harp Seal and Reflections on the State of the Stock, by Iu. I. Nazarenko and A. V. Iablokov, 9 pp., illus., printed, 1963. (Translated from the Russian, Zoologicheskii Zhurnal, vol. 41, 1962.) Fisheries Research Board of Canada, Sir Charles Tupper Bldg., Riverside Dr., Ottawa, Canada.

Selfangsten 1962 (Seal Fishery 1962), Arsberetning Vedkommende Norges Fiskerier 1962, no. 10, 20 pp., printed in Norwegian, 1963. Norges Fiskerier, Fiskeridirektoren, Bergen, Norway.

#### SEAMANSHIP:

Dutton's Navigation and Piloting, edited by John C. Hill, II, Thomas F. Utegaard, and Gerard Riordan, 804 pp., illus., printed, June 1958, \$8. United States Naval Institute, Annapolis, Md. A teaching text for the basic elements of marine navigation used at the U. S. Naval Academy, this book is divided into three parts. Part 1, piloting, contains chapters on the earth and its coordinates; chart projections, portfolios, and interpretations; the sailings; instruments used by the navigator; dead reckoning; the gyro compass; the magnetic compass; aids to navigation; elements of piloting; current sailing and ocean currents; navigational publications; the piloting team; tactical characteristics in piloting; electronic navigation; and the practice of piloting. Part 2, celestial navigation, includes chapters on introduction to celestial navigation; celestial lines of position; solution of the navigational triangle; navigational astronomy; celestial equator system of coordinates; time; determining GHA and Dec. from the Nautical Almanac; establishing the navigational triangle; the marine sextant and its use; sextant altitude corrections; complete solution using H. O. Publ. No. 214 and the Nautical Almanac; the Air Almanac, H. O. 208, H. O. 211, and H. O. 249; compass error at sea; sunrise and sunset, twilight, moonrise and moonset; identification of celestial bodies; latitude and longitude observations; the practice of navigation at sea; polar navigation; and lifeboat navigation. Part 3 covers relative movement and the maneuvering board. Included are a number of appendices covering summaries of terms and definitions; abbreviations, symbols, and labels, aids to solving problems in navigation; and other useful information.

Simplified Rules of the Nautical Road, by O. W. Will, III, 118 pp., illus., printed, 1963, \$2. United States Naval Institute, Annapolis, Md. Of value to anyone who owns or operates a boat, this booklet covers introduction to the rules, vessels approaching, lights and shapes, restricted visibility, and miscellaneous provisions. It also contains helpful hints, summary of sound signals, international rules, inland rules, pilot rules for inland waters, Motorboat Act of 1940, and condensed rules for preventing collisions.

#### SEA TROUT:

Scales Resorption and Spawning Marks in Sea Trout (SALMO TRUTTA L.) from Polish Waters (Resorpcja i Znaki Tarlowe lusez troci Salmo trutta L. z wod Polski), by Tadeusz Backiel and Roman Sych, OTS 61-11357, 39 pp., illus., processed, 1964, 50 cents. (Translated from the Polish, Roczniki Nauk Rolniczych, vol. 73, ser. B, no. 2, 1958, pp. 119-148.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

#### SEAWEED:

"The seaweed industry in Great Britain," by E. Booth, article, Fishing News International, vol. 3, no. 3, July-September 1964, pp. 229-230, 233, illus., printed, single copy 6s. 6d. (about 90 U. S. cents), Arthur J. Heighway Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England.

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

The Seaweeds of Peru, by E. Yale Dawson, Cesar Aceto, and Ninja Foldvik, 1 vol., November 18, 1963. University of Southern California, Los Angeles, Calif.

#### SHARKS:

Cones in the Retina of the Lemon Shark (NEGAPRION BREVIROSTRIS), by S. H. Gruber, D. H. Hamasaki, and C. D. B. Bridges, Contribution No. 492, 4 pp., illus., printed. (Reprinted from Vision Research, vol. 3, 1963, pp. 397-399.) Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami, Fla. 33149.

Sound Perception in Elasmobranchs, by W. J. Wisby and others, Contribution No. 493, 14 pp., illus., printed. (Reprinted from Marine Bio-Acoustics--Proceedings of a Symposium Held at Bimini, Bahamas, April 1963, pp. 255-268.) Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami, Fla. 33149.

#### SHRIMP:

"The development and status of the pink shrimp fishery of Washington and Oregon," by Austin R. Magill, article, Pacific Marine Fisheries Commission Bulletin 8, 1963, pp. 62-80, printed. Pacific Marine Fisheries Commission, 741 State Office Bldg., 1400 SW 5th Ave., Portland 1, Oreg.

"Observations on some aspects of spoilage in fresh and frozen prawns," by V. Pillai and others, article, Indian Journal of Fisheries, vol. 8, October 1961, pp. 430-435, printed. Ministry of Food and Agriculture of Government of India, New Delhi, India.

"Preserving cooked, peeled shrimps," by Robert T. Roskam, article, Chemical Abstracts, vol. 59, July 8, 1963, 1031h, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

Some Relations of Salinity to Population Distributions of Motile Estuarine Organisms, with Special Reference to Penaeid Shrimp, by Gordon Gunter, J. Y. Christmas, and R. Killebrew, 5 pp., printed. (Reprinted from Ecology, vol. 45, no. 1, Winter 1964, pp. 181-185.) Duke University Press, Box 6697, College Station, Durham, N. C.

#### SMOKED FISH:

"Content of 3, 4-benzopyrene in smoked saka, and in the smoke-soot of different methods of fish smoking," by N. D. Gorelova and others, article, Chemical Abstracts, vol. 59, September 16, 1963, 6905h, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

#### SOUTH AFRICA REPUBLIC:

Cape Times Fishing Supplement, October 20, 1964, 14 pp., illus., printed. Central News Agency Ltd., 130, Bree St., Cape Town, Republic of South Africa. Contains a review of the South African fishing industry by Clive Algar and includes articles on: "SA yards can make any fishing craft;" "They work for more efficient fishing;" "Fishermen look to science now;" "Million-ton catch--and SWA's share rises (pilchards);" "Steady market for fish meal;" "Stern trawlers--the latest in fishing;" "Rock lobster exports top R8m.--S. A. now produces 11m.

lb. every year;" "South Africans are now eating more fish;" "360 years ago the fishing industry started at Sandanha;" "Nearly R42m. sales to 60 markets;" "Cape has only one whaling station;" "Walvis Bay--mainstay of pelagic fishing;" and "Russian catch about 1m. tons a year."

"Larger laboratories help Institute to improve its services to industry," article, The South African Shipping News and Fishing Industry Review, vol. 19, no. 8, August 1964, pp. 105, 107, printed, single copy 30 cents (about 45 U. S. cents). Thomson Newspapers, South Africa (Pty.) Ltd., Box 80, Cape Town, Republic of South Africa. Discusses the 17th annual report of the Fishing Industry Research Institute, which outlines some of the more important technical and scientific services rendered to the South African and South West African fishing industry during 1963. A new addition to the laboratories on the grounds of the University of Cape Town was opened. Research was conducted in protein quality investigations, spontaneous heating of fish meal, fish protein concentrate extraction, fish frying methods, internal can corrosion, freezing and thawing of spiny lobsters, development of a fish cake mix, and the effects of fish meal and fish protein concentrate processing on their nutritional quality.

Seventeenth Annual Report of the Director, January-December 1963, 80 pp., illus., printed. Fishing Industry Research Institute, University of Cape Town, Rondebosch, Republic of South Africa. Discusses investigations conducted during 1963 in fresh and frozen fish, spiny lobster, fish smoking and frying, fish canning, tomato paste, fish meal and oil, clarification of sea water, spontaneous heating of fish meal, fish protein concentrate, nutrition and chemistry, and new products.

#### SPAIN:

Las Industrias de la Pesca y el Plan Nacional de Desarrollo (The Fisheries Industries and the National Development Plan), Estudio Sectorial No. 2, printed in Spanish. Sindicato Nacional de la Pesca, 18-20 Paseo del Prado, Madrid, Spain.

"El ano pesquero en la estadística" (The year's fishing in statistics), by Alevin, article, Industria Conservera, vol. 30, no. 301, July 1964, p. 179, printed in Spanish. Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

"La situación actual del sector conservero" (The present situation in the canning industry), by Mareiro; "La profundidad de la crisis conservera" (The seriousness of the canning crisis), by Alevin; "La industria conservera Espanola en 1963" (The Spanish canning industry in 1963); "Gran contraccion en nuestra industria conservera" (Great decline in our canning industry), article, Industria Conservera, vol. 30, no. 300, June 1964, pp. 145-146; 147; 155-156; 163, printed in Spanish.

#### SPECIES ASSOCIATION:

Species Association in Commercial Catches, by J. E. Paloheimo, Manuscript Report Series (Biological) No. 790, 2 pp., printed, 1964. Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.



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

storage industries, fisheries production in quantity and value, and quantity of supply and sales of fishery products and their average value at principal fish markets. Also includes data on processed marine products, fish culture area, production of fish fries, number of casualties of fishermen, losses and damage to fishing craft, and foreign trade in marine products. Most data are for 1963.

#### TERRITORIAL WATERS:

"Les droits de pêche français le long des côtes canadiennes" (The rights of the French fishery along the Canadian coasts), article, La Pêche Maritime, vol. 43, no. 1039, October 1964, pp. 711-712, illus., printed in French, single copy 12 F (about US\$2.45). Les Editions Maritimes, 190, Blvd. Haussmann, Paris, France.

#### TOXICITY:

"Biochemical studies on Minamata disease. III--Relations between the causal agent of the disease and the mercury compound in the shellfish with reference to their chemical behaviors; IV--Isolation and chemical identification of the mercury compound in the toxic shellfish with special reference to the causal agent of the disease," by M. Uchida, K. Hirakawa, and T. Inoue, articles, Kumamoto Medical Journal, vol. 14, 1961, pp. 171-179; pp. 181-187, printed. College of Medicine, Kumamoto University, Kumamoto, Japan.

"Origin of the causative agent of Minamata disease. I--Organic mercury compound in fish and shellfish from Minamata Bay," by K. Irukayama and others; II--Comparisons of the mercury compound in the shellfish from Minamata Bay with mercury compounds experimentally accumulated in the control shellfish," by K. Irukayama and others, articles, Kumamoto Medical Journal, vol. 14, 1961, pp. 157-169; vol. 15, 1962, pp. 1-12, printed.

#### TRADE LISTS:

The Bureau of International Business Operations, U. S. Department of Commerce, has published the following mimeographed trade list. Copies may be obtained by firms in the United States from the Commercial Intelligence Division, Office of Trade Promotion, Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. 20230, or from Department of Commerce Field offices at \$1 each.

Canneries and Frozen Foods--Producers and Exporters--Philippines, 15 pp., July 1964. Lists the names and addresses, size of firms, and types of products (including fish and shrimp) handled by each firm.

#### TRAWLERS:

"Russian robot trawler," article, Shipbuilding and Shipping Record, vol. 102, no. 21, 1963, p. 667, printed. Shipbuilding and Shipping Record, 33 Tottenham St., Westminster, London SW1, England.

#### TRAWLING:

Measurement of the Characteristics of Fishing by Trawlers, by G. L. Kesteven and A. E. Stark, Reprint 537, 15 pp., processed, (Reprinted from Fisheries Management Seminar, 1963, Report of Proceedings.) Division of Fisheries and Oceanography, Department of Primary Industry, Canberra, Australia.

More Profit in Midwater Trawling by Modern Echo-sounding, by Kurt Gaede, 5 pp., illus., printed, September 1964. (Reprinted from Fishing Gazette, August 15, 1964.) Brown & Ross, Inc., 17 Battery Pl., New York, N. Y. 10004.

Preliminary Bibliography on Trawlers and Trawling with Particular Reference to Tropical Waters, by A. Soulier, Occasional Paper 64/4, 14 pp., printed, 1964. Indo-Pacific Fisheries Council, Regional Office for Asia and the Far East, Food and Agriculture Organization of the United Nations, Bangkok, Thailand.

"Trawling at increased speeds," by V. I. Kaplan, A. B. Lishin, and E. I. Zaitsev, article, Rybnoe Khoziaistvo, vol. 38, no. 5, 1962, pp. 30-44, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia 17, B-140, Moscow, U.S.S.R.

#### TROPICAL FISHERIES:

"Problems associated with the development of fisheries in tropical countries. 2--The modernization of fishing methods," by R. C. Cole and L. H. Greenwood-Barton, article, Tropical Science, vol. 5, no. 4, 1963, pp. 215-247, illus., printed. Tropical Products Institute, 56/62 Grays Inn, London WC1, England.

#### TROUT:

"Fat oxidation and storage life of iced trout. II--The influence of sex and season," by Paul Hansen, article, Journal of the Science of Food and Agriculture, vol. 15, May 1964, pp. 344-348, printed. Society of Chemical Industry, 14 Belgrave Sq., London SW1, England.

Instructivo para la Cria de Trucha (Instructions for the Culture of Trout), by Rodolfo Ramirez Granados and Maria Luisa Sevilla Hernandez, 58 pp., illus., printed in Spanish, 1962. Instituto Nacional de Investigaciones Biologicas Pesquera, Direccion General de Pesca e Industrias Conexas, Secretaria de Industria y Comercio, Mexico, D. F.

The Management of Reclaimed Trout Streams; Interim Report upon Federal Aid in Fish Restoration, by Frederic F. Fish, 13 pp., printed, 1963. North Carolina Wildlife Resources Commission, P. O. Box 2919, Raleigh, N. C.

"Recherches sur la composition cellulaire et chimique du sang de la truite arc en ciel d'eleveage (Salmo gairdneri Richardson)" (The cellular and chemical characteristics of blood of normal rainbow trout in commercial production--Salmo gairdneri Richardson), by P. Besse and A. M. Normand, article, Bulletin de l'Academie Veterinaire de France, vol. 36, no. 8, 1963, pp. 389-391, printed in French. Vigot Freres, Editeurs, 23 rue de l'Ecole-de-Medicine, Paris, France.

"Trout production and marketing in France," by Roland Bellet, article, U. S. Trout News, vol. 9, no. 3, September-October 1964, pp. 15-19, printed. U. S. Trout Farmers Association, 110 Social Hall Ave., Salt Lake City, Utah 84111. The French trout farming industry dates back to 1900. Today there are about 850 trout farms in France. Some are privately owned; about 50 are Government owned. The farms produce rainbow, brown, and brook trout. The food

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

#### SPECIES IDENTIFICATION:

"Enolase: multiple molecular form in fish muscle," by Henry Tsuyuki and Finn Wold, article, Science, vol. 146, no. 3643, October 23, 1964, pp. 535-537, illus., printed, single copy 35 cents. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington, D. C. 20005. Starch-gel electrophoresis showed three distinct molecular forms of enolase in each of eight different species of Salmonidae. The three enolases did not appear to be artifacts of isolation, and their electrophoretic patterns were completely reproducible. The patterns were also highly characteristic for each individual species of fish, and together with the overall myogen pattern they represented unequivocal means of taxonomical identification.

#### SPOILAGE:

"Biochemical and nutritional studies on East Pakistan fish. II--Assessment of dehydrogenase activity in fish tissue and investigation on the mechanism of fish spoilage by this new method," by M. Qudrat-i-Khuda, H. N. De, and N. A. Khan, article, Pakistan Journal of Scientific and Industrial Research, vol. 3, 1960, pp. 20-21, printed. Pakistan Council of Scientific and Industrial Research, 3/4/D/VI, Nazimabad, Karachi, Pakistan.

#### SPRAT:

Experimental-Industrial Preservation with Sodium Pyrosulfite of Caspian Sprat for Production of Feed Meal, by S. V. Yezerskiy, JPRS-24, 182, 23 pp., processed, April 14, 1964, 75 cents. (Translated from the Russian, Trudy Instituta Ikhtiologii i Rybnogo Khozyaystva Akademii Nauk Kazakhskoy SSR, vol. 4, 1963, pp. 211-233.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

"On underwater observations of the behavior of sprats," by I. V. Nikonov, article, Rybnoe Khoziaistvo, vol. 38, no. 1, 1962, pp. 32-36, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia 17, B-140, Moscow, U.S.S.R.

#### STANDARDS:

"International standards and practices for fish and fishery products," by Rudolf Kreuzer, article, Fishing News International, vol. 3, no. 3, July-September 1964, pp. 265, 267-268, 270, printed, single copy 6s. 6d. (about 90 U. S. cents). Arthur J. Heighway Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England.

#### STATISTICS:

Bulletin Statistique des Peches Maritimes, 1961 (Statistical Bulletin of Marine Fisheries, 1961), 54 pp., printed in French and English, 1964. Conseil Permanent International pour l'Exploration de la Mer, Charlottenlund Slot, Charlottenlund, Denmark.

#### STURGEON:

Biologie et Exploitation des Esturgeons (Acipenserides) Caspiens (Biology and Utilization of the Caspian Sturgeons--Acipenserides), by Ismail Rostami, 210 pp., illus., printed in French, March 1961. Ahwaz Agricultural College, Molla Sani, Iran.

#### SUBMARINES FOR RESEARCH:

"Deep-diving craft as an aid to fisheries and oceanographic research," by A. E. F. Heydorn, article, The South African Shipping News and Fishing Industry Review, vol. 19, no. 9, September 1964, pp. 97, 99, 101, printed, single copy 30 cents (about 45 U. S. cents). Thomson Newspapers, South Africa (Pty.) Ltd., Box 80, Cape Town, Republic of South Africa. The answer to the problem of deep-sea oceanographic research lies in the provision of a submersible vehicle which can convey scientists to the depths to be explored in safety, in which breathing air is supplied at a pressure of one atmosphere and which can carry a power supply of sufficient capacity to provide driving power for the vehicle itself, for collecting devices, for cameras, and for illumination. Maneuverability and viewing facilities must be of a high order as prolonged observation of the sea-bed and its inhabitants is essential. Also the vehicle must not be too clumsy or heavy as it will have to be conveyed to research sites by surface vessels of moderate size. Types of vessels being used for research include the diving saucer, double-hulled craft such as the Alvin and the Deepstar, the Aluminaut, the Turtle, the mesoscaph, and the bathyscaph.

Deep Submergence Research, Report for Nov. 1, 1962-Dec. 31, 1963, 38 pp., printed, February 1964. Woods Hole Oceanographic Institution, Woods Hole, Mass.

"La estancia prolongada bajo el mar" (Living Under the Sea for Extended Periods), by Antonio Ribera, article, Iberica Actualidad Cientifica, vol. 42, nos. 25-26, July-August 1964, pp. 282-285, illus., printed in Spanish, single copy 30 ptas. (about 50 U. S. cents). Iberica Actualidad Cientifica, Apartado 759, Palau, 3, Barcelona 2, Spain. Discusses the underwater chamber developed for remaining under water for extended periods of time. Describes how 2 men lived in the vehicle for one week in June 1963.

#### SWITZERLAND:

Selling in Switzerland, by Jeannine Giffin and Alexander Dauman, OBR 64-108, 16 pp., printed, Sept. 1964, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Switzerland is one of the world's most active trading countries, and its economy is essentially free of government controls. The report covers the road to selling: import channels; import requirements; technical standards and requirements; patents; trademarks; distribution practices; and transportation, port, and storage facilities. Also gives details on commercial practices; marketing aids; Government procurement; United States export credit insurance and guarantees; and notes for business travelers.

#### TAIWAN:

Taiwan Fisheries Yearbook, 1964 Edition, 213 pp., illus., printed in Chinese and English. Taiwan Fisheries Bureau, Department of Agriculture and Forestry, Provincial Government of Taiwan, Taipei, Taiwan. Contains statistical tables on fishermen's organizations and membership, number of fishermen, status of fishing craft, status of ice-making and cold-



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

generally used is dry pellets. The use of mechanized equipment on trout farms has aided the industry greatly. There is importation of live, frozen, and smoked trout, and trout eggs. Retail prices for round trout range from 90 cents to \$1.35 a pound for 5- to 7-oz. fish.

#### TUNA:

"Compte rendu des premiers essais de peche au thon tropical à la senne du thonier sennear Danguy" (Report of the first trials in the tropical seine tuna fishery of the tuna seiner Danguy), by Francois Guicheney, article, La Peche Maritime, vol. 43, no. 1039, October 1964, pp. 737-741, illus., printed in French, single copy 12 F (about US\$2.45). Les Editions Maritimes, 190 Blvd. Haussmann, Paris, France.

The Distribution, Biology and Fisheries of the Pacific Tunas (O Rasprostraneni, Biologii i Promysle Tik-hookeanskikh Tuntsov), by V. G. Osipov, OTS 63-11118, 7 pp., processed, 1964, 50 cents. (Translated from the Russian, Trudy Soveshchaniy Ikhtologicheskoi Komissii Akademii Nauk SSSR, no. 10, 1960, pp. 188-194.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

"Interdependence between the hystamine and histidine content and organoleptic properties of tunny meat," by M. Ferencik and B. Havelka, article, Veterinarsky Casopis, vol. 11, 1962, pp. 384-391, printed in Czech, Kraj, Veter. Vysetr. Stanica, Bratislava, Czechoslovakia.

On the Number of Tuna Vessels or Aircraft Required to Search a Given Area Effectively, by J. S. Hynd, Reprint 539, 8 pp., illus., processed. (Reprinted from Fisheries Management Seminar, 1963, Report of Proceedings.) Division of Fisheries and Oceanography, Department of Primary Industry, Canberra, Australia.

"Monthly and annual variation of catch rate shown in the 'self-navigation fishing vessel type' mothership tuna fisheries," by Jun Nakagome and Shigemichi Suzuki, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 30, March 1964, pp. 234-238, printed, Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

"Relation between annual variations of hooking rate and age groups of yellowfin tuna in the tropical western Pacific Ocean. I--Annual variation of hooking rate," by Jun Nakagome, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 28, December 1962, pp. 1164-1167, printed.

"Du thon tropical capture au filet tournant: les essais du Danguy" (On tropical tuna caught with a purse seine: the experiments by the Danguy), by M. Guicheney, article, France Peche, no. 87, September 1964, pp. 21-26, illus., printed in French, single copy 2,5 F (about 50 U. S. cents). France Peche, Boite Postale 179, Loriet, France.

#### TUNA AND MACKEREL:

"Lichinki skumbrievykh ryb (Pisces, Scombriformes) iz Indiskogo Okeana" (Larvae of scombriform fish-

es--Pisces, Scombriformes--of the Indian Ocean), by N. N. Gorbunova, article, Trudy Instituta Okeanologii Akademii Nauk SSSR, vol. 62, 1963, pp. 68-95, printed in Russian. Izdatel'stvo Akademii Nauk SSSR, Moscow, U.S.S.R.

#### TURKEY:

Balik ve Balikcilik (Fish and Fishery), vol. 12, no. 10, October 1964, 32 pp., illus., printed in Turkish with English table of contents. Et ve Balik Kurumu G. M., Balikcilik Mudurlugu, Besiktas, Istanbul, Turkey. Includes, among others, articles on: "Synthetic filaments as utilized in the manufacture of fishing nets and ropes (Part II);" "The valuation of fish products in animal feeding and variations of product manufacturing process (Part II);" and "Observation of Ancona International Fishery Fair and Italy fisheries by technical points of view."

Selling in Turkey, OBR 64-97, 8 pp., printed, September 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.) Turkey provides a sizable market for a wide variety of goods and services, with emphasis on capital goods that will help her achieve the aims of her five-year development program. The report discusses the road to selling; Turkey's import channels; import requirements; distribution; and transportation, port, and storage facilities. Also covers commercial practices, marketing aids, Government procurement, selling under United States programs, and notes for business travelers in Turkey.

#### UNITED ARAB REPUBLIC:

Market Factors in the U.A.R., OBR 64-117, 8 pp., printed, September 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.) Sales prospects in the state-controlled economy of the United Arab Republic are best for industrial and essential consumer goods. The report discusses scope and nature of the market--geography and population, consumer purchasing power, national income, sales and prices, and economic development; competitive factors--trade agreements, regional trade organizations, import and exchange controls, business practices, and United States share of overall market; and market analysis for selected commodities and services--agricultural products, industrial machinery, motor vehicles, petroleum, and agricultural machinery. Also included are statistical tables showing national income, 1950-63; wholesale price and cost of living indices, 1954-63; imports by country of origin and principal commodity groups 1962-63; and U. S. exports to U.A.R. by major product group, 1963.

#### UNITED KINGDOM:

Fisheries of Scotland Report for 1963, Cmnd. 2332, 128 pp., illus., printed, August 1964, 8s. 6d. (about US\$1.70). Department of Agriculture and Fisheries for Scotland, Edinburgh, Scotland. (For sale by Sales Section, British Information Services, 845 Third Avenue, New York, N. Y. 10022) Discusses principal accomplishments in the Scottish fisheries during 1963; means of capture and persons engaged--fishing fleet, number of fishermen, grants and loans to fishermen

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

for purchase of vessels and gear; herring fisheries; white fish fisheries; shellfish fisheries; and miscellaneous items--byproducts production, and meteorological assistance. Also covers marine superintendence--coastal patrols, prosecutions for illegal trawling, seining, and other offenses, and Trawling in Prohibited Areas (Prevention) Act, 1909; salmon fisheries--catch, value and employment, closed seasons, district boards, poaching and illegal fishing, damage by seals to the fishery, and Committee on Scottish Salmon and Trout Fisheries; fisheries research projects; and harbors--grants and loans for harbor improvement, and dredging. Appendices present statistical tables and explanatory material on herring distribution and disposal of landings; herring landings by area; methods of capturing herring; and white fish--quantity and average price by species, fishing areas, landings by method and district, and foreign landing. Also included are information on salmon fisheries--annual closed seasons, details of catch, and report of Inspector; fisheries research--report of Director, and activities of Scottish Marine Biological Association laboratories; construction and improvement of harbors; and fisheries administration.

Torry Research Station Annual Report, 1963, on the Handling and Preservation of Fish and Fish Products, 56 pp., illus., printed, 1964, 90 cents. Department of Scientific and Industrial Research, State House, High Holborn, London WC1, England. (For sale by Sales Section, British Information Services, 845 Third Ave., New York, N. Y. 10022.) Describes accomplishments in research during 1963 on improvement in handling, treatment, and quality of wet fish; freezing and cold storage; smoke curing; canning; drying; salt-curing; and fishery byproducts. Also includes work in freeze-drying equipment, bacteriology of the production of fish meal and fish flour, lipids and protein denaturation, investigation of oxidative changes in the lipids of frozen white fish, and related subjects. Also contains a list of reports and papers published by Torry personnel during 1963 on the handling and preservation of fish and fishery products.

#### URUGUAY:

Revista del Instituto de Investigaciones Pesqueras, vol. I, no. 3, 1964, 109 pp., illus., printed in Spanish with English summaries. Instituto de Investigaciones Pesqueras, Facultad de Veterinaria, Alberto Lasplaces, 1550, Montevideo, Uruguay. Includes, among others, articles on: "El bio-proteocatenolizado de pescado en la alimentación humana" (The bio-proteocatenation of fish in human nutrition), by Victor H. Bertullo; "Estudios sobre el método de ensilado de pescado del Prof. Bertullo y Bach. Perez Hettich (Studies on the method of fish silage of Prof. Bertullo and Bach. Perez Hettich), by Pierre Beraud, Nestor Torres, and Saverio Marotta; and "La organización Universitaria de los Estudios de Biología Marina" (The University's organization of marine biological studies), by Enrique Rioja.

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

Marine Animals on Novaya Zemlya, by V. Antipin, Trans., -459, 3 pp., printed. (Translated from the Russian, *Sovetskaya Arktika*, no. 7, 1938, pp. 98-101.) U. S. Hydrographic Office, Washington, D. C.

Scientific Studies on Fishing Industry, USSR, TT: 64-41264, 55 pp., illus., processed, August 19, 1964, \$3. (Translated from the Russian, *Voprosy Ikhtiologii*, vol. 4, no. 2, 1964.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

"Sovjetsamveldets fiskerier" (Soviet fisheries), article, *Fiskets Gang*, vol. 50, no. 7, 1964, pp. 119-120, printed in Norwegian. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

Studies in Fish-Catching, Fish-Breeding, and Pisciculture in USSR, TT: 64-31877, 48 pp., printed, July 28, 1964, \$2. (Translated from the Russian, *Rybnoye Khozyaystvo*, no. 1, 1964.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

Studies on the Reproduction and Development of Fish in the Northern Seas, by I. I. Kazanova, Translation N. S. No. 36, 22 pp., printed, 1964. (Translated from the Russian, *Soviet Fisheries Investigations in Northern European Seas*, Moscow, 1960.) Fisheries Laboratory, Ministry of Agriculture, Fisheries and Food, Lowestoft, Suffolk, England.

Translations from Rybnoye Khozyaystvo (Fishery Economy) No. 1, 1964, USSR, TT: 64-41114, 46 pp., illus., printed, \$2. (Translated from the Russian.) Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 20230.

The following publications are available on loan from the National Lending Library for Science and Technology, D.S.I.R., Boston Spa, Yorkshire, England.

Usesoiuznoe Soveshchanie po Biologicheskim Osnovam Rybnogo Khoziaistva na Vnutrennikh Vodoemakh SSSR, 1961. Rybnoe Khoziaistvo Vnutrennikh Vodoemov SSSR (Fishing Resources of the Internal Water Systems in the USSR: Proceedings of the Conference), R. 31716, printed in Russian. Ikhtiologicheskaiia Komissiiia Akademii Nauk SSSR, Moscow, U.S.S.R.

Rybolovnye Traulery: Tekhnika Lova i Obrabotka Rybi (Fishing Trawlers: Techniques of Catch and Processing of Fish), by G. Ia. Semenov, R. 31752, printed in Russian, 1963.

Zamorazhivanie i Sushka Rybi Metodom Sublimatsii (Freezing and Drying of Fish by the Sublimation Method), by N. A. Voskresenskii, R.32174, printed in Russian.

#### VESSELS:

Comparison of Performance of Response and Non-Response Vessels, by J. E. Paloheimo, Manuscript Report Series (Biological) No. 788, 3 pp., printed, 1964. Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., Canada.

Good Fishing with New Ships (Guter Fang mit Neuen Schiffen), by Manfred Schelzel, O.N.I. Translation No. 902, 47 pp., processed. (Translated from the German, Transpress VEB Verlag fur Verkerkehrswesen, Berlin, Germany, 1960.) Office of Naval Intelligence, Translations Section, Washington, D. C.



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

"Kristensen announces 77-foot fiberglass combination vessel," article, Fish Boat, vol. 9, April 1964, pp. 39-40, printed, H. L. Peace Publications, 624 Gravier St., New Orleans, La. 70150. Discusses a new 77-foot fiberglass vessel that, although designed with Alaska king crab operations in mind, is adaptable to many other types of fishing as well. Provisions have been made for a hydraulic pothauler to be mounted on the rail and for a hydraulic crane to be mounted on the forward hatch coaming, the latter to be used for transferring pots from the hauler to the loading hopper amidships. With this arrangement, the entire operation can be performed by two deckhands in full view of the helmsman in the afterwheel house so that the operation can be coordinated at all times. The deck was designed to be as clear of obstructions as possible so that a substantial number of pots can be stacked there. However, it is anticipated that collapsible pots, which are being developed, will eventually be stored in the forward hold, thus giving the vessel even greater capacity. Because the greatest cost of fiberglass construction is the mold, the architect has designed a boat to be used not only as a crabber but, with slight modifications, also as a dragger or as a halibut long-liner. In addition, the design is balanced so that the vessel can be built with the house forward for purse-seining. The pipe alley under the holds makes the pipe leads accessible to the crab tanks, fuel oil, fresh water, ballast tanks, and miscellaneous hydraulic equipment. The plan calls for four holding tanks amidships with a total capacity of about 5,000 king crabs.

"Quatre bateaux de Douarnenez sont en route pour les côtes du Honduras" (Four vessels from Douarnenez are en route to the coasts of Honduras), article, La Peche Maritime, vol. 43, no. 1039, October 1964, pp. 713-715, illus., printed in French, single copy 12 F (about US\$2.45). Les Editions Maritimes, 190, Blvd. Haussmann, Paris, France.

"Swiatowa produkcja statkow dla rybolowstwa w 1963 r." (World's production of fishing vessels in 1963), by Czeslaw Wojewodka, article, Budownictwo Okretowe, vol. 9, no. 9, September 1964, pp. 314-315, printed in Polish. Wydawnictwa Czasopism Technicznych NOT, 3/5 Czackiego, Warsaw, Poland.

#### VITAMIN A:

"Mechanical impulse method for extraction of vitamin A from whale liver," by L. L. Langunov and others, article, Chemical Abstracts, vol. 60, January 6, 1964, 365d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

"Stability of vitamin A concentrates from fish oil," by L. O. Shnaidman and A. M. Pavlova, article, Chemical Abstracts, vol. 55, December 11, 1961, 26369d, printed.

"Stability of vitamin A in shark-liver oil emulsion," by A. K. Jaiswal and H. C. Mital, article, Chemical Abstracts, vol. 60, May 11, 1964, 11854e, printed.

#### WHALE OIL:

"Hydrogenation of whale oil to higher alcohols over a stationary catalyst," by D. B. Orechkin and others, article, Chemical Abstracts, vol. 58, April 15, 1963, 8152d, printed.

"Obtaining highly unsaturated alcohols by selective hydrogenation of sperm whale oil," by I. M. Tovbin and others, article, Chemical Abstracts, vol. 59, August 19, 1963, 4180b, printed.

"Sea hunt for specialties oils," article, Chemical Week, vol. 95, July 4, 1964, pp. 27-28, 30, 32, printed, McGraw-Hill Publishing Co., 330 W. 42nd St., New York, N. Y. 10036. Discusses the \$5 to \$8 million per year United States sperm whale oil industry. Sperm whale oil's unique chemical structure qualifies it as a plasticizer for some adhesive resins. At 15½ cents a pound, sperm whale oil is half the cost of any synthetic substitute. The present market for the 45° F. natural winter oil fraction is divided four ways. About 45 percent goes to oil or specialties firms that make extreme pressure lubricant additives for automatic transmission fluids; differential fluids; and other lubricants for automobiles, trucks, and aircraft. Twenty-five percent goes to the metalworking trade as a lubricant and additive for cutting oils, metal stamping, and drawing. Another 25 percent goes to leather processors as a prefabrication softening agent. The final 5 percent goes to textile mills as a spinning lubricant and to processing of the oils into fatty acids. A derivative of sperm whale oil, spermaceti, is used as an emollient in lipsticks and other cosmetics.

#### WHALES:

"Carboxymethylation of sperm whale metmyoglobin," by Leonard J. Banaszak and others, article, Journal of Biological Chemistry, vol. 238, October 1963, pp. 3307-3314, printed. Williams and Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, Md.

#### WHALING:

Licence Limitation as Applied to Whaling, by R. G. Chittleborough, Reprint 534, 12 pp., illus., processed. (Reprinted from Fisheries Management Seminar, 1963, Report of Proceedings.) Division of Fisheries and Oceanography, Department of Primary Industry, Canberra, Australia.

#### CORRECTION

In the November 1964 issue, page 130, Our Freshwater Fishes (set of pictures), the address of the publisher was omitted. The address is R. E. Eshmeyer, 224 Elizabeth St., East Lansing, Mich. 48823.

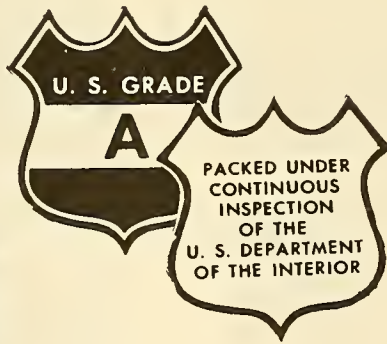


WHAT GOVERNMENT INSPECTION OF FISHERY PRODUCTS MEANS TO YOU

CONFIDENCE  
IN  
THE PRODUCT

ASSURANCE  
OF  
A QUALITY  
PRODUCT

CONSISTENT  
GOOD  
QUALITY



TRAINED  
GOVERNMENT  
INSPECTORS

GRADE  
"A"  
QUALITY

QUICK  
FROZEN



SANITARY  
PACKING  
CONDITIONS