



## FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

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

- | Number   | Title                                                                                 |
|----------|---------------------------------------------------------------------------------------|
| CFS-2043 | - Louisiana Landings, January 1959, 2 pp.                                             |
| CFS-2086 | - Louisiana Landings, February 1959, 2 pp.                                            |
| CFS-2090 | - Imports & Exports of Fishery Products, 1954-1958 Annual Summaries, 10 pp.           |
| CFS-2100 | - Ohio Landings, June 1959, 2 pp.                                                     |
| CFS-2111 | - New York Landings, June 1959, 4 pp.                                                 |
| CFS-2114 | - North Carolina Landings, July 1959, 3 pp.                                           |
| CFS-2115 | - Fish Meal and Oil, July 1959, 2 pp.                                                 |
| CFS-2116 | - California Landings, April 1959, 4 pp.                                              |
| CFS-2118 | - Louisiana Landings, March 1959, 2 pp.                                               |
| CFS-2121 | - Massachusetts Landings, June 1959, 5 pp.                                            |
| CFS-2123 | - Georgia Landings, July 1959, 2 pp.                                                  |
| CFS-2124 | - South Carolina Landings, July 1959, 2 pp.                                           |
| CFS-2125 | - Florida Landings, July 1959, 7 pp.                                                  |
| CFS-2126 | - Maine Landings, July 1959, 3 pp.                                                    |
| CFS-2127 | - New York Landings, July 1959, 4 pp.                                                 |
| CFS-2128 | - Frozen Fish Report, August 1959, 8 pp.                                              |
| CFS-2133 | - Middle Atlantic Fisheries, 1958 Annual Summary, 5 pp.                               |
| CFS-2134 | - Mississippi Landings, May 1959, 2 pp.                                               |
| CFS-2136 | - Alabama Landings, May 1959, 2 pp.                                                   |
| CFS-2138 | - Mississippi Landings, June 1959, 2 pp.                                              |
| CFS-2140 | - Shrimp Landings, May 1959, 6 pp.                                                    |
| CFS-2143 | - Alabama Landings, June 1959, 2 pp.                                                  |
| CFS-2165 | - Gulf Fisheries, 1958 Annual Summary, 12 pp.                                         |
| FL-254   | - List of Fishery Associations in the United States, September 1959 (Revised), 13 pp. |
| FL-292   | - List of Fisheries Associations in the United States, August 1959 (Revised), 5 pp.   |
| FL-293   | - List of Fishermen's and Fish Shore Workers' Unions, September 1959 (Revised), 8 pp. |

FL-354 - Reef Fishing in the Philippines, by A. F. Umali and H. E. Warfel, 28 pp., illus., 1949.

Canned Fish Consumer Purchases, 1959:

FL-478i - July, 31 pp.

FL-478j - August, 31 pp.

Wholesale Dealers in Fishery Products (Revised):

SL- 12 - Virginia, 1959.

SL- 44 - Nebraska (Missouri River and Tributaries), 1959.

SL-113 - Firms Canning Crab Meat, 1958.

SSR-Fish No. 285 - Estimating Maximum Fishing Depth of Longline Gear with Chemical Sounding Tubes, by Joseph J. Graham and Dorothy D. Stewart, 19 pp., illus., December 1958. A summary of methods used by various investigators to estimate the fishing depth of longline is given. Sounding tubes, used by Pacific Oceanic Fishery Investigations biologists in conjunction with studies of albacore tuna, *Germo alalunga* (Bonaterre), in the central North Pacific, measure the depth of the longline with considerable accuracy. A method, using readings provided by the tubes, is developed so that the observed "hang" of a given basket of gear and the theoretical "hang" can be compared. It is suggested that distortions related to retrieving procedures can be overcome. A technique is shown by which the maximum fishing depths for individual hooks along an entire set of gear can be estimated.

SSR-Fish No. 302 - Experimental Fishing to Determine Distribution of Salmon in North Pacific Ocean and Bering Sea, 1956, by Mitchell G. Hanavan and George K. Tanonaka, 26 pp., illus., May 1959. Five vessels were employed from May to October 1956 to study the distribution of Pacific salmon in the North Pacific Ocean and Bering Sea. The operation was designed to provide samples of fish for racial identification to provide evidence of seasonal movements and changes in the distribution of salmon; and to study the ocean habitat and conditions that control the distribution, movement, and survival of salmon. The area of operation was approximately 2 million square miles extending from the coast of Washington and Oregon. Within this area 195 gill-net sets resulted in the capture of 7,963 salmon. The fish were measured on board before freezing. Length frequencies are shown graphically in the report by species and area and in relation to the mesh size in which the fish were captured.

SSR-Fish No. 304 - Biology of Chinook and Blueback Salmon and Steelhead in the Wenatchee

River System, by Robert R. French and Roy J. Wahle, 21 pp., illus., June 1959.

SSR-Fish No. 307 - Fishery Management Studies on the Madison River System in Yellowstone National Park, by Norman G. Bensen, Oliver B. Cope, and Ross V. Bulkley, 33 pp., illus., May 1959.

SSR-Fish No. 309 - Ecology of the Sheepsfoot River Estuary, by Alden P. Stickney, 25 pp., illus., May 1959.

Operations of the Bureau of Commercial Fisheries under the Saltonstall-Kennedy Act, Fiscal Year 1958, 75 pp., illus., processed. The fourth annual report to the Congress of the activities of the U. S. Bureau of Commercial Fisheries during the fiscal year 1958 under the provisions of the Saltonstall-Kennedy Act of July 1, 1954. The Act makes available funds from import duties on foreign fishery products for the promotion of the free flow in commerce of domestic fishery products and provides funds for a range of research and services in support of the conservation and development of the fishery resources and the stabilization of the fishery industry. Among the important biological research programs of work during fiscal year 1958: (1) in New England, research on the sea scallop revealed means of increasing the overall yield from the sea scallop fishery by regulating the size of the metal rings in the dredges; (2) on the Pacific Coast, new and expanded high-seas oceanographic studies added to knowledge on sardine populations, especially the relationship between water temperature and spawning; and (3) studies in Alaska gave valuable information on improving the effectiveness of present salmon harvesting regulations and made considerable progress in accurately predicting the sizes of future salmon runs. In the industrial field, new or expanded emphasis in research was placed on: (1) improving the quality of fishery products, the development and promulgation of grade standards, and conducting voluntary inspection in fish processing plants; (2) finding new uses for fish oils; (3) determining the nutritive values of fish meals in animal feeds; (4) improving the processing and marketability of fishery products; and (5) broad economic research dealing with the soaring costs of marine insurance, fishery transportation costs, domestic production costs of U. S. groundfish and albacore, production costs of these same species in major competing countries, consumer reaction to present marketing techniques, and studies of fresh fish consumption and the industrial feeding market. New or expanded service functions included: (1) the collection of detailed biological and economic statistical data on shrimp in the South Atlantic and Gulf areas to provide better data to the industry on a current basis; (2) expanded reporting services on prices and market conditions for frozen fishery products at key marketing centers, current reporting on imports of fishery products and byproducts at main ports of entry, and coverage of prices and market conditions for canned fishery products; (3) the collection and distribution of market information on fishery receipts and wholesale prices at Baltimore, Md.; (4) new and expanded explorations for fish-

ery species including shrimp, king crab, clams, industrial fish, snapper, and tuna; and (5) expanded fishery education and market development functions including kitchen-testing, fish-cookery demonstrations, market promotion, and visual education.

Sep. No. 565 - Shrimp Exploration by the M/V Oregon along the Northeast Coast of South America.

Sep. No. 566 - Influence of Vessel-Handling Practices on Formation of Black Spot in Shrimp.

Sep. No. 567 - Fish and Shellfish Purchases by Public Schools with Food Services, 1957-58.

Sep. No. 568 - Research in Service Laboratories (November 1959): Contains these articles--"Chemical Composition of Pacific Coast Fish and Shellfish;" "Freezing and Cold Storage of Pacific Oysters and Fresh-Water Fish;" "New Products from Fish Oils--Monoglycerides;" "Study of Chemical Compounds Formed During Spoilage of Fish;" and "Thread Herring Meal Nutritional Studies."

Sep. No. 569 - Use of Plastic Sheets for Conversion of Soft, Muddy Bottoms into Oyster Beds.

THE FOLLOWING ENGLISH TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE NOT FOR GENERAL DISTRIBUTION BUT ARE AVAILABLE FOR REFERENCE ONLY FROM THE U. S. FISH AND WILDLIFE SERVICE, BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

Comparison of Variations of Fishing Condition in a Whole Year Among Each Subarea and Migration of Fish Groups in the Southern Part of the Pacific Ocean, by Jun Nakagomo, 5 pp., processed, translation. (Bulletin of the Japanese Society of Scientific Fisheries, vol. 24, no. 12, 1959, pp. 957-960.)

Correlation between the Movement and Appearance of Fish School, by Toshiro Euroki, 15 pp., processed, translated from Japanese. (Reprinted from Memoirs of the Faculty of Fisheries, Kagoshima University, vol. 7, February 1959, pp. 87-101.)

Migration and Behavior of Large Scad in the Black Sea, by V. N. Tikhonov, 16 pp., processed, translated from Russian. (Reprinted from Behavior of Fish and Commercial Exploration, V. N. I. R. O., Trudy, vol. 36, pp. 52-61.)

Observations on the Reaction of Black Sea Anchovies and Some Other Fishes to Artificial Irritants, by N. N. Danelevsky and D. V. Radakov, 8 pp., processed, translated from Russian. (Reprinted from Behavior of Fish and Commercial Exploration, V. N. I. R. O., Trudy, vol. 36, pp. 25-32.)

THE FOLLOWING ENGLISH TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE AVAILABLE FOR LIMITED DISTRIBUTION FROM THE U. S. FISH AND WILDLIFE SERVICE, BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

Catch Variations in the North Pacific Albacore. I--Recruitment and Dispersion of the North Pacific Albacore, by Akira Suda, 24 pp., illus., processed. (Translation of Report of Nankai Regional Fisheries Research Laboratory, no. 9, December 1958, pp. 103-116.)

Catch Variations in the North Pacific Albacore. II--Variation in the Amount of Recruitment, by Akira Suda, 22 pp., illus., processed. (Trans-

lation of Report of the Nankai Regional Fisheries Research Laboratory, no. 10, March 1959, pp. 72-87.)

Fishing Condition of the Indian Ocean, by Koya Mimura, 3 pp., processed, translation. (Tuna Fishing, no. 53, October 1958, pp. 25-26, The Investigative Society of Tuna Fishery, Kangawa Prefecture, Japan.)

On the Migration and the Growth of the Skipjack, KATSUWONUS PELAMIS (Linnaeus), in the Izu and Bonin Sea Areas and the North-Eastern Sea Area Along the Pacific Coast of Japan, by Tsuyoshi Kawasaki, 34 pp., illus., processed, translation. (Bulletin of Tohoku Regional Fisheries Research Laboratory, no. 4, March 1955, pp. 101-119.)

On the Migration and the Growth of the Skipjack, KATSUWONUS PELAMIS (Linnaeus), in the South-Western Sea Area of Japan, by Tsuyoshi Kawasaki, 34 pp., illus., processed, translation. (Report of Tohoku Regional Fisheries Research Laboratory, no. 4, pp. 83-100.)

On the Nitrogen Cycle and Cultivable Capacity of Fish in the Balanced Aquarium, by Aritsune Saeki, 15 pp., illus., English translation, processed. (Translated from the Japanese Journal of Limnology, vol. 19, nos. 3 & 4, March 1958, pp. 118-129.)

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

(Baltimore) Monthly Summary--Fishery Products, June, July, August 1959; 6, 6, and 7 pp., respectively. (Market News Service, U. S. Fish and Wildlife Service, 400 E. Lombard St., Baltimore 2, Md.) Includes arrivals of fresh and frozen fishery products receipts by original receivers on the Baltimore Wholesale Fish Market, for the months indicated.

California Fishery Products Monthly Summary, July 1959; 13 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish, mackerel, and anchovies; pack of canned tuna, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; American Tuna Boat Association auction sales; for the month indicated.

Gulf Monthly Landings, Production, and Shipments of Fishery Products, June, July and August 1959, 6 pp. each. (Market News Service, U. S. Fish and Wildlife Service, 609-611 Federal Bldg., New Orleans 12, La.) 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; sponge sales; and fishery imports at Port Isabel and Brownsville, Tex., for the months indicated.

New England Fisheries--Monthly Summary, August 1959, 22 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth

Pier, Boston 10, Mass.) Reviews the principal New England fishery ports, and presents food fish landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and landings and ex-vessel prices for fares landed at the Boston Fish Pier and sold through the New England Fish Exchange; for the month indicated.

New York City's Wholesale Fishery Trade--Monthly Summary for May and June 1959, 20 and 22 pp., respectively. (Market News Service, 155 John St., New York 38, N. Y.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, imports entered at New York City, primary wholesaler prices for frozen products, and marketing trends; for the months indicated.

(Seattle) Washington, Oregon, and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, August 1959, 10 pp. (Market News Service, U. S. Fish and Wildlife Service, Pier 42 South, Seattle 4, Wash.) Includes landings and local receipts, with ex-vessel and wholesale prices in some instances, as reported by Seattle and Astoria (Ore.) wholesale dealers; also Northwest Pacific halibut landings; and Washington shrimp landings; for the month indicated.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

How to Cook Scallops, by Dorothy M. Keller, Paula W. Lemmon, and Rose G. Kerr, Test Kitchen Series No. 13, 19 pp., illus., printed, 20 cents, 1959. Contains 39 choice kitchen-tested recipes for cooking scallops and a generous number of illustrations. Inasmuch as scallops are marketed in the form of dressed meat, many people do not know that they are a shellfish--a mollusk possessing two shells, similar to oysters or clams. The scallop moves around in the water by actively snapping its shells together. This shell-snapping results in the development of an oversized muscle called the "adductor muscle." This excellently-flavored muscle is the only part of the scallop eaten by Americans. Europeans, however, eat the entire scallop. There are two varieties of scallops--the large sea scallop and the smaller bay scallop. The sea scallop is taken from the deep waters off the northern and middle Atlantic States. The bay scallop is taken from inshore bays and estuaries from New England to the Gulf of Mexico and in the Pacific Northwest. Scallops, according to the new booklet, are marketed all year but are at their best when taken from November to April. Fresh scallops are a light cream color, sometimes varying to a delicate pink. Scallops are available fresh or frozen, but only in the form of dressed meat, as the scallops are opened, packed, and iced at sea.



Fresh scallops and frozen scallops when thawed, should have a sweetish odor. When bought in packages, they should be practically free of liquid. Both the sea and the bay scallop have a lean, light, firm meat and a sweet flavor. Both contain high levels of well-balanced protein, very little fat, and many of the minerals and vitamins so necessary for good health.

Life History of the Sea Lamprey of Cayuga Lake, New York, by Roland L. Wigley, Fishery Bulletin 154 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 59), pp. 561-617, illus., printed, 40 cents, 1959.

## MISCELLANEOUS PUBLICATIONS

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

### ALEWIVES:

The Run, by John Hay, 192 pp., illus., printed, \$3.95. Doubleday & Company, Inc., Garden City, N. Y., 1959. An unusual and beautifully written book about the alewife run up the streams of Cape Cod in the spring. The author describes his observations from late winter, before the onset of the adult alewife migration up the rivers and streams, until mid-July, when the offspring begin to swim down toward the open sea. The alewife fishery, once one of great economic importance in New England both for food and fertilizer (alewives planted along with the seeds were said to make the corn grow tall and plump), has now degenerated to an unimportant bait fishery. Yet the author has brought together the scientific aspects and the poetry and philosophy inherent in the great spawning migrations of the alewife. The book includes, among others, chapters on the arrival, the reproductive urge, and the nature of an alewife; and migration from salt- to freshwater. In his conclusion, the author explains: "The mystery about the travels of birds, eels, monarch butterflies, or alewives, is not only a matter of routes or seasonal behavior. It has to do with an internal response to this spinning globe and its unendingly creative energies."

### BRITISH GUIANA:

Review of the Fisheries of British Guiana in 1958, Bulletin No. 1, 53 pp., illus., printed. Fisheries Division, Department of Agriculture, Georgetown, British Guiana, 1959. Summarizes the work of the British Guiana Fisheries Division in 1958 as well as current progress and developments and future objectives. Discusses, among others, the following topics: fishing grounds and operational areas, fishing methods and gear, wholesale markets, seasonal fluctuations of fish supplies, pond cultivation progress, aquarium fish trade, and imports of fishery products. The report also contains sections on trawling, snapper fishing, cooperatives, fishery loans, and research projects. Includes a number of charts

and graphs as well as statistical tables on landings and prices of fishery products.

### BYPRODUCTS:

"Marine Products - Parts I and II," article, The Feed Bag (Buyers' Guide of 1959), pp. 76-80, printed. Editorial Service Company, 1712 W. St. Paul Ave., Milwaukee 3, Wis. Describes a number of marine products used in the manufacture of animal feeds. Part I presents details of place of origin, chemical composition, and use of fish meals--menhaden, sardine, herring, salmon, white fish, crab, and shrimp. Part II is devoted to other marine products such as condensed fish solubles, dried fish solubles precipitate, homogenized condensed fish, fish bone-meal, and kelp meal.

### CANADA:

Fisheries Statistics of Canada - Newfoundland, 1957, 28 pp., printed in French and English, 50 Canadian cents. The Queen's Printer and Controller of Stationery, Ottawa, Canada, August 1959. Presents statistical tables showing quantity and value of Newfoundland's principal species of fish and shellfish; capital equipment in the primary fishery operations; and number of persons engaged in the fisheries.

Fisheries Statistics of Canada, 1957 (Quebec), 59 pp., illus., printed in French and English, C\$1. Queen's Printer and Controller of Stationery, Ottawa, Canada, September 1959. Consists of tables giving the quantity and value of the principal species of fish and shellfish landed in Quebec in 1939-57; quantity and value of landings by species and fisheries districts, 1956-57; capital equipment employed in the primary fisheries operations by fisheries districts, 1956-57; number of persons engaged in the fisheries by fisheries districts, 1956-57; and quantity and value of manufactured fishery products by species and fisheries, 1956-57.

Journal of the Fisheries Research Board of Canada, vol. 16, no. 4, August 1959, 177 pp., illus., printed. Queen's Printer and Controller of Stationery, Ottawa, Canada. Contains, among others, these articles: "Biochemical Studies on Sockeye Salmon During Spawning Migration. VI--Ribonucleic Acid and Deoxyribonucleic Acid," by Vera M. Creelman and Neil Tomlinson; "Fatigue and Mortality in Troll-Caught Pacific Salmon (*Oncorhynchus*)," by R. R. Parker, E. C. Black, and P. A. Larkin; "Factors Affecting the Nitrite Content of Treated Fish Fillets," by C. H. Castell and Maxine F. Greenough; "Variation in the Annual Average Weight of Chum Salmon Caught in British Columbia Waters, 1946 to 1958," by H. Godfrey; "Comparison of Certain Scottish and Canadian Experiments in Respect of Grading Fish for Quality," by J. M. Shewan and A. S. C. Ehrenberg; "Biochemical Studies on Sockeye Salmon During Spawning Migration. VIII--Androgen Content of Testes," by D. R. Idler and H. Tsuyuki; and "Studies on the Conversion of Fish Stickwater to Solubles. IV--Effect of Enzyme Treatment on the Viscosity of Whale Solubles," by J. R. McBride, R. A. MacLeod, and D. R. Idler.

Operations of Modern Longliners and Druggers, Atlantic Seaboard, 1952-1957, by John Proskie, Primary Industry Studies No. 1, vol. 7, part 1,

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

70 pp., illus., processed. Economics Service, Department of Fisheries of Canada, Ottawa, Canada, 1958. This is the first part of the seventh annual progress reports on the study of the operations of modern fishing craft on the Atlantic seaboard. Contains a brief analysis of the trends established over the six-year period that the study has been in progress, including impact of the program, costs and earnings, factors affecting the size of the investment, prices and volume of output as related to break-even, and trends in incomes of fishermen. The tables contain a detailed comparison of results for the various types and size-classes of fishing craft. The second part, containing a summary of the data collected during the 1957 season, was published in August 1958. The objective of the program is to obtain information on the success of the modernization program and guidance for the development of future policy in this field.

#### CANNING:

Preventing Struvite Formation in Thermally Treated Seafoods, by Walter A. Zachowski and Carl R. Fellers, U. S. Patent 2,870,025, January 20, 1959. U. S. Patent Office, Washington 25, D. C.

#### COD:

"The Portuguese Like Canadian Cod," by Richard Grew, article, Foreign Trade, vol. 112, no. 5, August 29, 1959, pp. 16, 17, printed. Queen's Printer and Controller of Stationery, Government Printing Bureau, Ottawa, Canada. Although Portuguese fishing fleets land large quantities of cod from the grounds off the coasts of Newfoundland, Labrador, and Greenland, the total catch is still insufficient to meet the demand in Portugal. Consequently, a large quantity of dried- and wet-salted cod is imported, principally from Iceland, Norway, France, Canada, Germany, and the Faroe Islands. Canadian cod is much in demand especially if the size of fish and market price meet local needs.

#### CONSUMPTION:

How American Buying Habits Change, 266 pp., illus., printed, \$1. U. S. Department of Labor, Washington 25, D. C., 1959. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This book describes the improvements in living standards which Americans have achieved since 1888. It describes the changes in the consumption habits of the American people and concentrates on the middle group of consumers--the families of the millions of blue-collar and white-collar workers who make up the vast bulk of our predominantly city life. In the chapter on "meals, menus, and market baskets," it discusses the evolution in diets and food marketing; improvements in nutrition; and food in the family budget.

#### CRAWFISH:

"Pilot Crawfish Farm," article, Louisiana Conservationist, vol. 11, no. 9, September 1959, pp. 9-10, 28 illus., printed. Louisiana Wild Life and Fisheries Commission, Wild Life and Fisheries Bldg., 400 Royal St., New Orleans 16,

La. Describes a projected pilot crawfish farm, reportedly the first of its kind in the world, to be established near Henderson, La., under the supervision of the Louisiana Wild Life and Fisheries Commission. As pounds per acre per year is the yardstick by which crop production is measured, the crawfish culture units will be an acre each. Three of these will be combined into a single pilot farm, where variables can be tested side by side. The results obtained are expected to provide answers to questions on the most efficient size for culture units; best depth of water; preparation of the shoreline; fertilization of ponds; best types of vegetation for food, shade, and protection; number of breeders needed; supplemental feeding; predator control; yield per acre; and the profits in such a venture.

#### ELECTRICAL FISHING:

"La Pesca con Electricidad" (Electrical Fishing), article, Mar y Pesca, vol. 2, no. 1, January-July 1959, pp. 10-13, illus., printed in Spanish. Instituto Nacional de la Pesca, Havana, Cuba.

#### ENZYMES:

"Certain Enzymes Can Provide Human Food and General Feed Products from the Trash Fish of the Sea," by W. W. Meinke, article, Texas Engineering Experiment Station News, vol. 10, no. 1, March 1959, pp. 3-6, illus., printed. Texas Engineering Experiment Station, Texas A. & M. College System, College Station, Tex. This article describes experimental work with the use of enzymes to accomplish scaling and viscera- tion of trash fish. Since the catch of trash fish incidental to the shrimp fishery alone is estimated at over 2 billion pounds a year, the economic value to such a process, if it can be applied on an industrial basis, will be great. Products obtained include edible fish, fish solubles, and fish oil.

#### FISH BEHAVIOR:

"Studies on Social Groupings in Fishes," by C. M. Breder, Jr., Bulletin of the American Museum of Natural History, vol. 117, article 6, pp. 393-482, printed, \$1.50. Library, American Museum of Natural History, Central Park West at 79th St., New York, N. Y., 1959.

#### FISH CULTURE:

Control of Chironomid Larvae in Milkfish Ponds, by Yun-An Tang, and Tung-Pai Chen, Fisheries Series, No. 4, 41 pp., illus., printed, 12 U. S. cents. The Joint Commission on Rural Reconstruction, 25 Nanhai Road, Taipei, Taiwan, China, June 1959.

#### FISH POPULATIONS:

"Significance of Trap-Net Selectivity in Estimating Population Statistics," by William C. Latta, article, Papers of Michigan Academy of Science, Arts & Letters, vol. 44, 1959, printed. Institute for Fisheries Research, Michigan Department of Conservation, University Museum Annex, Ann Arbor, Mich.

#### FOOD AND AGRICULTURE ORGANIZATION:

The Application of Science to Inland Fisheries, by E. D. Le Cren, Fisheries Study No. 3, 58 pp.,

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

printed, 50 cents. Food and Agriculture Organization of the United Nations, Rome, Italy, 1958. (For sale by Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.) Reviews the biological basis of fish production in inland waters (including migratory- and brackish-water fisheries). Describes production and fish cropping; physical and chemical factors influencing algal growth; the principal types of food eaten by fish; the principles underlying the efficiency of conversion of food into fish growth and production; and the concept of the "production" of fish, with emphasis on survival, growth, and mortality. Also reviews the importance of adequate recruitment and the value of artificial hatching and rearing; the possibilities of increased control of natural processes; the relationship between fisheries and other human activities such as farming, dams, and reservoirs; and the past research in limnology and fishery biology.

Current Bibliography for Aquatic Sciences and Fisheries, vol. 2, no. 5, May 1959, 217 pp., processed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

Fishing Installations in Saline Lagoons, by Ruggero De Angelis, General Fisheries Council for the Mediterranean, Studies and Reviews No. 7, August 1959, 36 pp., illus., processed. GFCM Secretariat, Food and Agriculture Organization of the United Nations, Rome, Italy. Presents the text and plates of technical paper no. 34 on fishing in saline lagoons, given at the Fifth Meeting of the General Fisheries Council for the Mediterranean at Rome on October 13-18, 1958. Describes the historical and modern use of barrages, trelliswork, and screens for trapping migratory fish in coastal lagoons. Includes a number of detailed drawings depicting the construction and method of operation of various types of installations. The description demonstrates the efficiency of this system, in which the young fry can escape and the sea bottom is not disturbed, two disadvantages of all floating devices.

United Kingdom: The Antioxidant in Food Regulations, 1958, Food and Agricultural Legislation, vol. 7, no. 4, XI.9/58.4, 8 pp., printed. Food and Agriculture Organization of the United Nations, Rome, Italy. (For sale by Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.)

Yearbook of Fishery Statistics, 1957 (International Trade), vol. VIII, 347 pp., processed in English, French, and Spanish, US\$4. Food and Agriculture Organization of the United Nations, Rome, Italy, 1959. (Sold in United States by Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.) With this issue of the FAO Yearbook, the Fisheries Division resumes publication of statistics relating to international trade in fishery products last presented in 1955, in vol. IV, part II, which covers the years through 1953.

This volume devotes one section each to seven groups of fishery commodities defined in the FAO Fishery Statistical Classification--(1) fish, fresh, chilled, or frozen; (2) fish, dried, salted, or smoked; (3) crustaceans and molluscs, fresh, dried, salted, etc.; (4) fish, crustaceans, and molluscs, canned; (5) fish, crustacean, and mollusc preparations, not in airtight containers; (6) aquatic animal oils and fats, crude or refined; and (7) aquatic animal meals and similar products. Each section contains a table summarizing aggregate imports and exports by country for that commodity group; a series of synoptic tables showing the flow of exports from the principal exporting countries to the more important destinations; and a series of tables presenting the details of the exports of individual fishery products from the principal exporting countries. These 7 sections are preceded by 4 general summary tables and followed by notes and a table of conversion factors. Data are given in most tables for 1948 and for 1953 through 1957.

#### FROGS:

"La Rana Toro, su Existencia y Aprovechamiento en Cuba" (The Bullfrog, its Life History and Cultivation in Cuba), by Federico Gomez de la Maza, article, Mar y Pesca, vol. 2, no. 1, January-July, 1959, pp. 8-9, illus., printed in Spanish. Instituto Nacional de la Pesca, Havana, Cuba.

#### GEAR:

Commercial Fishing Gear and Fishing Methods in Florida, by J. B. Siebenaler, Technical Series No. 13, 45 pp., illus., printed. Florida State Board of Conservation, Tallahassee, Fla.

#### GENERAL:

Bulletin of Marine Science of the Gulf and Caribbean, vol. 9, no. 3, September 1959, illus., printed. The Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla. Includes, among others, the following articles: "Spotted and Brown Shrimp Post-Larvae (Penaeus) in North Carolina," by Austin B. Williams; "The Green Turtle (Chelonia mydas mydas) in Florida," by Archie Carr and Robert M. Ingle; "Distribution of the Blue Marlin and Black Marlin in the Indo-Pacific," by James E. Morrow, Jr.; and "Decarboxylation Pathways of Amino Acids in Fish Tissue," by J. Claudatus, P. Gutierrez, and D. Lefemine.

Características de Algunos Peces Comerciales y Otros que lo Pueden Ser en el Futuro (Characteristics of Some Commercial Fishes and Others Which May Become Important in the Future), by L. Navarro, 36 pp., illus., printed in Spanish. Secretaria de Marina, Mexico, D. F.

Fisheries Research Papers, vol. 2, no. 2, April 1959, 98 pp., illus., printed. Department of Fisheries, Olympia, Wash. Includes among others the following articles: "The Fishery for Herring (Clupea pallasii) on Puget Sound," by R. Walter Williams; "Survival of Downstream Migrant Salmon Passing Alder Dam in an Open Flume," by Dale E. Schoeneman; "The Larval



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

Development of the Sand Sole (*Psetichthys melanostictus*)," by Cleveland P. Hickman, Jr.; "Commercial Salmon, Fishing Intensity in Puget Sound, 1939-1955," by Charles O. Junge, Jr.; "Efforts of Stream Dredging on Young Silver Salmon, *Oncorhynchus kisutch*, and Bottom Fauna," by William H. Rees; "Tagging Experiments on Sablefish at Holmes Harbor, Wash.," by Alonzo T. Pruter; "Migration and Fishing Mortality Rates of Columbia River Spring Chinook Salmon in 1955," by Henry O. Wendler; "A Study of Localized Predation on Marked Chinook Salmon Fingerlings Released at McNary Dam," by Richard B. Thompson; and "Calculated Minimum Contributions of Washington's Hatchery Releases to the Catch of Salmon on the Pacific Coast and the Coasts Assessable to Hatchery Operations," by C. H. Ellis and R. E. Noble.

Increasing Profits from Fish, by John P. Carroll, Kirby M. Hayes, and Paul Paradis, Publication No. 340, 8 pp., illus., printed. Mailing Room, Extension Service, University of Massachusetts, Amherst, Mass. This leaflet for food retailers outlines briefly and concisely points to be observed in buying, storing, selling, and increasing sales of top-quality fish in order to achieve increasing profits. Humorously illustrated, it is of practical value to food stores handling fishery products.

"Meeting Tomorrow's Fish and Wildlife Needs," by Arnie J. Suomela, article, Extension Service Review, vol. 30, no. 6, June 1959, pp. 127, 138 illus., printed, single copy 15 cents. Federal Extension Service, U. S. Department of Agriculture, Washington 25, D. C. (For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.) Discusses program planning in the U. S. Fish and Wildlife Service to meet future needs. The interrelation and interdependence of all resources are stressed. The Bureau of Commercial Fisheries seeks to maintain fisheries at the point of maximum sustained yield with peak efficiency for the fisherman's effort. Closer cooperation between the Departments of Agriculture and Interior and the furtherance of conservation education are required to achieve program objectives.

The Open Sea, Its Natural History, Part II: Fish and Fisheries (with Chapters on Whales, Turtles, and Animals of the Sea Floor), by Alister Hardy, 322 pp., illus., printed, \$7.50. Houghton Mifflin Co., 2 Park St., Boston 7, Mass. Describes the history and habits of fish in general, life on the ocean floor, fish parasites, herring, haddock, and the fishing industry.

Statistical Abstract of the United States, 1959 (80th Annual Edition), 1054 pp., illus., printed, \$3.50 (buckram). U. S. Bureau of the Census, Washington, D. C., 1959. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This is the standard summary of statistics for the most recent year available on the social, political, and economic organization of the United States. It contains, among others, a section on fisher-

ies which presents briefly statistics relating to quantity and value of catch, fishermen and fishing craft, catch of principal species, canned and frozen fishery products, and foreign trade in fishery products. The principal sources of these data on fisheries are reports published by the Fish and Wildlife Service.

Turn to the Sea, by Athelstan Spilhaus, 46 pp., illus., printed. National Academy of Sciences, National Research Council, Washington, D. C., 1959. An interestingly-written and informative narrative describing the resources and potentialities of our oceans. It discusses recent and important developments in oceanography and the marine sciences and includes a chapter on fishery resources.

United States Coast Pilot No. 7--California, Oregon, Washington, and Hawaii, 383 pp., printed, \$3. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C. The latest edition of this publication supersedes the 1951 edition of Coast Pilot 7 and cancels the 1950 edition of Coast Pilot 10, which formerly covered the Hawaiian Islands in a separate volume. The eighth edition covering the Pacific Coast and Hawaii is based on the work of the Coast and Geodetic Survey and includes the results of Coast Pilot field inspections made in 1957. It contains nautical information that required more than 800 pages in the previous books. New editions are published about every seven years, and supplements, containing changes and new information, are published annually and distributed free. The latest supplement together with Notices to Mariners subsequent to it will correct the Coast Pilot to date. A combination atlas, encyclopedia, geography text, and nautical guidebook, the Coast Pilot contains information of importance to the navigator of United States coastal waters. Most of this information cannot be shown conveniently on the standard nautical charts and is not readily available elsewhere. Subjects include landmarks, navigation regulations, channels, anchorages, dangers, routes, weather, ice, pilotage, and port facilities. The Pacific Coast has phenomena that are all its own. San Francisco's fogs are of three kinds: the summer afternoon sea fog that forms a cliff of white vapor and moves inland at an average of 16 miles an hour; the tule fog which is a low-lying dense land or river fog that forms on winter mornings and drains slowly seaward; and a nondescript fog, consisting of a mixture of city smoke, dust and vapor, which drifts slowly seaward in the morning, and returns as a dark cloud about 1 p.m. before the west wind. The Santa Ana, a desert wind that blows offshore, usually in or near San Pedro Bay, may reach a speed of 52 knots and gives the mariner little warning. Rocks and currents make coastwide navigation dangerous, especially in thick weather; many of the rocks are marked by kelp, which can be seen on the surface during the summer and autumn. The first Pacific Coast Pilot was written a little over a century ago by George Davidson, one of the Survey's most renowned scientists, and appeared in the Survey's report for 1858. Davidson's

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

successors, although they must speak the language of the sea, have kept high standards of clarity and English.

#### INDIA:

The Indo-Norwegian Project in Kerala, by Per Sandvén, 147 pp., illus., printed. Norwegian Foundation for Assistance to Underdeveloped Countries, Oslo, Norway, 1959. Describes the work of the Foundation, a state-sponsored and public-supported organization, in assisting to develop the fishing and fish-handling and marketing industries, as well as health and sanitation facilities, in the Indian state of Kerala. The project was undertaken under the auspices of the United Nations expanded program of technical assistance, except that the funds are applied not only for providing technical experts, services, and training, but also for capital assistance in the form of equipment and machinery. The project was initiated in 1952 with the signing of a tripartite agreement between India, Norway, and the United Nations and three fishing communities in this southwestern India state, which were selected for aid. Accomplishments have been encouraging in mechanization of fishing boats, provision for repair facilities, introduction of new types of fishing gear, improvement of processing and curing methods, building of ice-producing plants, supplying insulated trucks and vessels for transport of fresh fish, organization of fishermen's cooperatives, improvement of environmental sanitation with main stress on the supply of drinking water, and establishment of a health station. The author reminds us in his conclusion that "The underdeveloped nations need foreign experts and capital in their struggle to achieve greater economic growth. They must be helped to be able to help themselves build their countries."

Notes on Eggs, Larvae and Juveniles of Fishes from Indian Waters. I--XIPHIAS GLADIUS (Linnaeus), by S. Jones, 5 pp., illus., printed. (Reprinted from Indian Journal of Fisheries, vol. 5, no. 2, 1958, pp. 357-361.) Central Marine Fisheries Research Station, Marine Fisheries P. O., Mandapam Camp, South India.

The Tuna Live-Bait Fishery of Minicoy Island, by S. Jones, 8 pp., illus., printed. (Reprinted from Indian Journal of Fisheries, vol. 5, no. 2, 1958, pp. 300-307.) Central Marine Fisheries Research Station, Marine Fisheries P. O., Mandapam Camp, South India.

#### INTERNATIONAL CONFERENCES:

Fish Processing Technologists Meeting, Rotterdam, June 25-29, 1956, Symposium Papers Nos. 1-25, processed. Food and Agriculture Organization of the United Nations, Rome, Italy. Contains papers on: "Use of Preservatives and Antibiotics in the Preservation of Fresh Fish," by H. L. A. Tarr; "Antibiotics as Aids in Fish Preservation. II - Further Studies on Fish Fillets," by Peter Yakoubovsky-Lerke and Lionel Farber; "The Use of Antibiotics for Extending the Freshness of Fish and Shellfish," by R. Pasternack, A. S. Malaspina, C. L. Wrenshall, and R. C. Ottke; "Effectiveness of Aureomycin on

Keeping Quality of Several Demersal Fish," by T. Tomiyama, Y. Yone, and S. Kuroci; "Aureomycin as an Ice Additive," by B. Albertsen; "Experiments with Bacteriostatic Ices on Fish," by J. Bystedt and A. Liljemark; "Can We Extend the Keeping Time of Chilled Fish with Antibiotics," by Sverre Hjorth-Hansen; "Icing Cod with Salt Water Ice," by Poul Hansen; "Fresh Water Preservation," by H. L. A. Tarr; "Observations on the Use of Prechilled Brines for the Temporary Storage of California Sardines and Mackerel," by Lionel Farber; "Some Observations Concerning the Brine Cooling of Fish Aboard a Fishing Vessel," by Joseph W. Slavin; "Fresh Fish Quality Assessment in the Commercial Fish Inspection," by Poul Fr. Jensen; "The Sensory Assessment of Iced White Fish by a Panel Technique," by J. M. Shewan and A. C. S. Ehrenberg; "Danish Studies of the Storage of 'Wet' Fish at Temperatures Close to 0° C. Procedure for Organoleptic, Bacteriological and Chemical Assessment of Freshness," by Poul Hansen; "Recent Work on the Use of 'Total Volatile Bases' and Trimethylamine Contents and Tetrazolium Salt Reduction for Assessing the Quality of Iced Fish," by J. M. Shewan and J. Liston; "Preliminary Results of Some New Tests for Fresh-Fish Quality," "The Objective Assessment of Raw Fish Quality," by Lionel Farber and P. Y. Yerke; "A Rapid Method for the Estimation of Volatile Bases in Fish Muscle," by W. A. Montgomery; "The Applicability of the Vacuum Distillation Technique for the Determination of Volatile Acids and Volatile Bases in Fish Flesh," by Antonio A. Da Costa, Tetuo Timiyama, and Joseph W. Stern; "Public Health Aspects of the Use of Antibiotics in Foods," by Chr. Engel; "An Enzymatic Method for Evaluating the Acceptability of Bactericidal Ice," by W. Partmann; "The Use of Ice as a Counter Agent to an Anaerobic Environment in Iced Demersal Fish," by W. A. MacCallum; and "Appreciation de l'Alteration du Poisson Frais par un Examen Organoleptique Systematique" (Estimation of Fish Spoilage by Means of Systematic Organoleptic Examination), by France Soudan, J. Bazin, G. Chapel, E. Seynave, and A. Daknoff. These papers are available individually from the above mentioned address.

#### IRELAND:

Fisheries (Amendment) Act, 1958, No. 15 of 1958, 59 pp., printed in English and Gaelic, 3s 6d. (about 49 U. S. cents). Government Publications Sale Office, G. P. O., Arcade, Dublin, Ireland.

Fisheries (Consolidation) Act, 1959, No. 14 of 1959, 178 pp., printed, 10s 6d. (about US\$1.47). Government Publications Sale Office, G. P. O., Arcade, Dublin, Ireland.

#### ISRAEL:

Bamidgeh (Bulletin of Fish Culture in Israel), vol. 11, no. 2, June 1959, 42 pp., illus., printed in English and Hebrew. Joint Agricultural Extension Center, Division of Fisheries, Ministry of Agriculture, Tel Aviv, Israel. Includes, among others, the following articles: "Fish Pond Culture and the Water Economy in Israel," by S. Tal; and "A Key to the Tilapia Species Found



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

in Pond Areas," by A. Yashour and A. Hefetz.

Fishermen's Bulletin, no. 20, June 1959, 32 pp., illus., printed in Hebrew with English abstracts. Fishermen's Bulletin, P. O. B. 699, Haifa, Israel. Contains, among others, the following articles: "Tuna Fishing on F/V Shinio Maru," by J. Carmel; and "Trawler and Trawl Gear in Action, II," by M. Ben-Yami.

#### JAPAN:

Bulletin of Takai Regional Fisheries Research Laboratory, no. 23, February 1959, 91 pp., illus., printed in Japanese with English summaries. Tokai Regional Fisheries Research Laboratory, Tsukishima, Chuo-Ku, Tokyo, Japan. Includes, among others, the following articles: "Fundamental Study of the Detection of Fish by Supersonic Wave. II--Supersonic Reflection Coefficient of Fish Net," by S. Kawada and C. Yoshimuta; "Studies on the Effects of Net Preservatives. I--Preserving Effects Dependent on Conditions Applying a Commercial Copper Naphthenate to Twine," by S. Takayama, Y. Shimozaki, and K. Kanna; "Studies on Muscle Proteins of the Squid," by J. J. Matsumoto; and "Studies of Preservation of Marine Products by Chemical Preservative. IV--Effect of Nitrofurans Compounds on the Keeping Quality of Raw Fish and Shellfish," by S. Tetsumoto.

#### JELLED MEAT:

"Decomposed Meat of Tunas and Marlins. I--Observation and Statistical Analyses of Meats Collected in the Solomon Sea During the Summer, 1953; II--Components and Development of the Jellied Meat," by Suezou Asakawa and Akira Suda, article, Nankai-ku Suisan-Kenkyusho Hokoku, vol. 5, 1957, pp. 169-186, printed in Japanese. Nankai-ku Suisan-Kenkyusho Sanbashi-dori, Kochi-shi, Japan.

#### LAMPREYS:

The Lampreys of California, by Willis A. Evans, Robert C. Tharratt, and Leo Shapovalov, Inland Fisheries, Informational Leaflet No. 22, 3 pp., processed. California Department of Fish and Game, 722 Capitol Ave., Sacramento 14, Calif., August 1958. Describes the three kinds of lampreys found in California: the Pacific lamprey, Entosphenus tridentatus; the brook lamprey, Lampetra planeri; and the river lamprey, Lampetra ayresii. Lampreys may be distinguished from eels and other true fishes by the possession of a circular sucking mouth, without functional jaws, the lack of paired fins, and the presence of seven external gill openings instead of the single gill opening of true fishes. Although said to be palatable, they are seldom used as a food fish. They pose a considerable problem as a parasite on food and game fish but are not nearly as dangerous a threat to fish populations as the Atlantic sea lamprey which has invaded the Great Lakes in recent years.

#### MARKETING:

Market Survey on Canned and Frozen Sea Foods in France, Market Survey Series No. 20, 12 pp., illus., printed. Ministry of Commerce and Industry, Government of India, New Delhi, India,

1959. This pamphlet presents results of an investigation of potential markets in France for frozen and canned shrimp, frog legs, lobster tails, and other shellfish, in order to assist Indian manufacturers and exporters in establishing sales there. Topics discussed are the size and nature of the market, regulations and other requirements, and channels of trade. Also included are tables summarizing French imports, exports, and imports of canned and frozen shellfish.

#### NORWAY:

Fisket-Feltet (Fishing Field), vol. 1, no. 1, July 1959; vol. 1, no. 2, August 1959, 8 pp., illus., printed in Norwegian, 50 Øre per issue (7 U. S. cents). Fiske-Feltet, Øvregt. 7, Alesund, Norway. The first two issues of a new fishery periodical.

#### NUTRITION:

"The Effect of Concentrates of Polyunsaturated Acids from Tuna Oil upon Essential Fatty Acid Deficiency," by Orville S. Privett, Erik Aaes-Jorgensen, Ralph T. Holman, and Walter O. Lundberg, article, Journal of Nutrition, vol. 67, March 19, 1959, pp. 423-432, printed. The Wistar Institute of Anatomy and Biology, 36th St. at Spruce, Philadelphia 4, Pa.

#### OCEANOGRAPHY:

Annual Report of the Oceanographic Institute, Fiscal Year 1957-1958, 21 pp., processed. The Oceanographic Institute, Florida State University, Tallahassee, Fla., 1959. Describes the functions and activities of the Oceanographic Institute during the fiscal year July 1, 1957, to June 30, 1958.

"Oceanographers Need Ships," by Richard Litell, article, Science News Letter, vol. 76, no. 12, September 19, 1959, pp. 186-187, illus., printed. Science Service, Inc., 1719 N St., N. W., Washington 6, D. C. Discusses a recent report by the National Academy of Sciences-National Research Council on the current status of the marine sciences in this country which contains a series of "minimal" recommendations for the improvement of oceanographic research. It urges the Government to expand its support of the marine sciences at a rate which would result in at least a doubling of basic research activity during the next ten years. It also urges that this increased support be accompanied by a new program of ocean-wide surveys, requiring a doubling of the present research effort. According to the author, "Neither of these recommendations can be carried out without an increase in the number of research ships available for exploration. With specific regard to ships, therefore, the Committee further recommended that a shipbuilding program be started, aimed at replacing, modernizing, and enlarging the number of ocean-going ships now being used for research, surveying and development."

#### OYSTER PESTS:

The Biology and Control of the American Whelk Tingle UROSALPINX CINEREA (Say) on English Oyster Beds, by D. A. Hancock, Fishery

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

Investigations, Series 2, vol. 22, no. 10, 69 pp., illus., printed, 17s 6d. (about US\$2.45). Her Majesty's Stationery Office, York House, Kingsway, London W. C. 2, England, 1959.

#### OYSTERS:

"Oyster Farming in Australia," by L. T. Sardone, article, World Fishing, vol. 8, no. 9, September 1959, pp. 61-63, illus., printed. John Trundell, Ltd., St. Richards House, Eversholt St., London, N. W. 1, England. Describes methods used in the cultivation of the Sydney rock oyster in New South Wales. This oyster is cultivated by various methods at points along 1,300 miles of the eastern Australian coastline. The bulk of oysters marketed in Australia is produced in New South Wales from oyster farms leased out by the Government, and production from New South Wales accounts for over 95 percent of the Australian total.

#### PHILIPPINES:

The Philippine Journal of Fisheries, vol. 5, no. 1, January-June 1957, 91 pp., illus., printed. Department of Agricultural and Natural Resources, Manila, Philippines. Contains articles on: "The Balat Fisheries of Maqueda Bay, Samar, Philippines," by Jose R. Montilla and Hilario C. Antonio; "Growth Types of the Pacific Pilchard (*Sardinops caerulea* Girard): An Analysis of Samples of the Pacific Pilchard on the Basis of Length-Frequency Distribution at Different Ages," by Inocencio A. Ronquillo; and "Marine Fisheries of the Central Visayas," by Santos B. Rasalan.

#### PIKE BLENNY:

Some Aspects of the Behavior of the Blennioid Fish CHAENOPSIS OCELLATA (Poey), by C. Richard Robins, Craig Phillips, and Fanny Phillips, 10 pp., illus., printed. (Reprinted from Zoologica, Scientific Contributions of the New York Zoological Society, vol. 44, part 2, July 20, 1959, pp. 77-83.) Contribution No. 230, The Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

#### PLAICE:

The Spawning of Plaice in the North Sea, by A. C. Simpson, Fishery Investigations, Series 2, vol. 22, no. 7, 113 pp., illus., printed, £1 17s 6d. (about US\$5.25). Her Majesty's Stationery Office, York House, Kingsway, London W. C. 2, England, 1959.

#### POISONOUS FISH:

The Venomous and Poisonous Fish of Guadeloups, by A. Ebroin, Fishery Publication No. 3, 14 pp., illus., translated from French. Caribbean Commission, Kent House, Port-of-Spain, Trinidad, W. I., 1959.

#### PRESERVATION:

"Boric Acid-Free Preservation of Fresh Shrimps and Shrimp Meat--II," by W. Ludorff, Chr. Hennings, and K. E. Neb, article, Zeitschrift für Lebensmittel-Untersuchung und -Forschung, vol. 108, 1958, pp. 330-341, printed in German. J. F. Bergmann, Leopoldstrasse, 175, Munich 23, Germany.

#### PRESERVATION BY IRRADIATION:

Radiation Preservation of Food, PB-151493, 461 pp., illus., printed, \$5. Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., 1959.

#### QUALITY:

"Improvement in Quality of Iced White Fish. Factors Affecting Quality and Tetrazolium Color Test," article, Food Investigation 1957, Report of the Food Investigation Board (Great Britain), pp. 3-4, printed. Department of Scientific and Industrial Research, Charles House, 5-11 Regent St., London S. W. 1, England, 1958.

"Improvement in Quality of Iced White Fish. Temperature Conditions at Inland Markets and Retailers' Premises," article, Food Investigation 1957, Report of the Food Investigation Board (Great Britain), pp. 7-9, printed. Department of Scientific and Industrial Research, Charles House, 5-11 Regent St., London, S. W. 1, England, 1958.

#### QUALITY CONTROL:

Setting Up a Quality Control and Technical Development Laboratory, by James R. Irving, Technical Aids for Small Manufacturers No. 65, 4 pp., printed. Small Business Administration, Washington 25, D. C., June 1959. A one-man testing laboratory to check incoming materials can be the first step in establishing quality control and technical development in a plant. Savings from improved uniformity in manufacturing conditions and in product quality can often make such a project self-supporting. Consistent product development can later turn the laboratory into a money-maker. A long-range new products program will eventually insure the firm's continued existence, profitability, and growth.

#### REFRIGERATION:

The Role of Refrigeration in the World's Food Supply, by Mogens Jul, Publication No. 12, 23 pp., illus., processed. Danish Meat Research Institute, Roskilde, Denmark, 1959. This study is the outline for an address at the opening session of the 10th International Congress of Refrigeration, Copenhagen, August 19, 1959. The author discusses the need for refrigeration during processing and storage, increased need for transportation of food, trends in modern food distribution, nutritive problems, effect of extra handling on cost, effect on taste, and the food of the future. It also contains statistical tables showing data on refrigeration and refrigerated products. Some information on fishery products is included.

#### RESEARCH VESSEL:

"The Design of a Research Stern Fishing Trawler," by J. C. Esteves Cardoso and C. R. Caldera Saraiva, article, World Fishing, vol. 8, no. 9, September 1959, pp. 48-50, illus., printed. World Fishing, John Trundell, Ltd., St. Richards House, Eversholt St., London N. W. 1, England. Part 1 of a paper read at the meetings of the Institution of Naval Architects held in Lisbon in June 1959. Explains in detail the

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

need for expansion of the Portuguese fishing fleet and exploration for new fishery resources. According to the author the association of Trawler Owners hopes to meet this need with a new research vessel of the most modern design; fitted for stern trawling and equipped with air conditioning, twin Diesel engines, research laboratories, facilities for fish processing, and various types of navigation and fish-finding aids. The types of gear selected are specially concerned with trawling, long-lining, and bait fishing for tuna.

#### SALMON:

Character of the Migration of Pink Salmon to Fraser River Spawning Grounds in 1957, by F. J. Ward, printed. International Pacific Salmon Fisheries Commission, New Westminster, B. C., Canada.

"Retinal Responses of Pink Salmon Associated with its Downstream Migration," by M. A. Ali and W. S. Hoar, article, *Nature*, vol. 184, no. 4680, July 11, 1959, pp. 106, 107, illus., printed. *Nature*, MacMillan & Co., Ltd., St. Martin's St., London W. C. 2, England.

#### SALT FISH:

"Some Preliminary Experiments Towards Developing a Method of Salt Curing Fish Suitable for West Indian Conditions," by W. A. King Webster, article, The West Indies Fisheries Bulletin, no. 3, May-June 1959, pp. 5-9, processed. Ministry of Natural Resources and Agriculture, Federal House, Port-of-Spain, Trinidad, W. I. Describes the technique employed in wet salt-curing carite, a locally-caught fish, and the results obtained, including acceptability, length of storage, cost, and suitability of containers.

#### SARDINES:

"Experiments in Cooking Sardines--I," by R. Meesemaecker and Y. Sohler, article, Food Manufacture, no. 34, April 1, 1959, pp. 148-153, printed. Food Manufacture, Leonard Hill, Ltd., Eden St., London N. W. 1, England.

#### SHRIMP:

"Resumen de Situacion de Camarones en Panama" (Summary of the Shrimp Situation in Panama), by Juan L. Obarrio, article, Mar y Pesca, vol. 2, no. 1, January-July 1959, pp. 31-33, printed in Spanish. Instituto Nacional de la Pesca, Havana, Cuba.

#### TAIWAN:

Report of the Institute of Fishery Biology of Ministry of Economic Affairs and National Taiwan University, vol. 1, no. 3, June 1959, 64 pp., illus., printed in English with Chinese summaries. The Institute of Fishery Biology, No. 89, Sec. III, South Sin Sun Road, Taipei, Taiwan, China. Contains among others, the following articles: "Studies on the Elasmobranch Fishes from Formosa. Part II--A New Carcharoid Shark, *Carcharias yangi*, from Formosa," by H. T. Teng; "The Distribution and Fluctuation of Some Demersal Fishes of Taiwan Straits," by F. H. Liu and G. C. Chen; "Anchovies Found in Taiwan," by S. C. Shen; and "A List of Edible Mollusks of Taiwan," by T. Y. Ho.

#### TENNESSEE VALLEY AUTHORITY:

1959 Annual Report, 13 pp., illus., printed. Fish and Game Branch, Division of Forestry Relations, Tennessee Valley Authority, Knoxville, Tenn. Discusses briefly accomplishments of 25 years of TVA fish and game activities. The most notable, of course, has been the expansion in the area of fishing water from 116,000 to 600,000 acres. The report mentions that TVA by law must operate its reservoirs for flood control, navigation, and power production. Development of fish and wildlife resources is secondary but, fortunately, there is no great conflict between the two interests. Current activities include population studies, tagging studies, fish stocking, water temperature and spawning data collection, enclosed fishing docks, and encouragement of sport and commercial fishing.

#### TERRITORIAL WATERS:

The Icelandic Fishing Limits, 20 pp., printed in German and English. Verband der Deutschen Hochseefischereien E. V., (23) Bremerhaven-F., Postfach 340, Germany, June 1959. In September 1958, the Icelandic Government submitted to the General Assembly of the United Nations a Memorandum in which it attempted a detailed justification of the extension of its fishing limits from 4 to 12 nautical miles. In its Memorandum, the Government of Iceland relies on legal, biological and economic arguments. This article presents the views of other nations of Europe regarding Iceland's arguments on the extension of its fishing limits.

#### TRADE LIST:

The Office of Economic Affairs, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., has published the following mimeographed trade list. Copies may be obtained by firms in the United States from that office or from Department of Commerce field offices at \$2 a copy.

Fish and Whale Meat Meal--Producers--Peru, 4 pp. (June 1959). Lists the names and addresses of some sixty fishing companies operating fish meal plants. Only three of these plants are listed as producers of whale-meat meal.

Oils (Animal, Fish, and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters, Ecuador, 11 pp. (July 1959). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes firms dealing in fish oils.

Oils (Animal, Fish, and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters, Haiti, 6 pp. (July 1959). Lists the names and addresses, size of firms, and types of products handled by each firm. Fish oils not listed specifically by any firm.

Oils (Animal, Fish, and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters, The Netherlands, 22 pp. (July 1959). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes firms dealing in fish oils.



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

## TUNA:

"Sobre Atuns de Angola" (On Tuna of Angola), by H. Vilela and R. Monteiro, article, Boletim da Pesca, vol. 12, no. 64, September 1959, pp. 11-54, illus., printed in Portuguese with abstracts in French. Boletim da Pesca, Avenida da Liberdade, 211-4, Lisbon, Portugal.

## UNDERWATER TELEVISION:

"Underwater TV and the Fisheries (2)," by Jay Russell, article, World Fishing, vol. 8, no. 8, August 1959, pp. 50-54, illus., printed. John Trundell (Publishers), Ltd., St. Richards House, Eversholt St., London N. W. 1, England. In the first part of this article, published in the June issue of World Fishing, the author described some of the work already accomplished by underwater television. In this second part, he evaluates the potential of underwater television and appraises its future for marine research and for use in the fisheries. He concludes that its primary importance will be for studying fishing gear and the reactions of fish to gear.

## UNION OF SOUTH AFRICA:

Fishing Industry Research Institute, Twelfth Annual Report of the Director, 1 January 1958-31 December 1958, 70 pp., illus., printed. Fishing Industry Research Institute, Cape Town, Union of South Africa. Includes functions and activities of the Institute and brief accounts of progress in its program of research during 1958. Presents the results of investigations covering fresh, salted and dried, fried, and canned fish; fish meal; stickwater recovery; fish flour; and routine inspections and analyses.

## UNITED KINGDOM:

Grimsby, The World's Premier Fishing Port, 150 pp., illus., printed. The Grimsby Fishing Vessel Owners' Association, Fish Dock Road, Grimsby, England, 1959. An interesting handbook, illustrated with both photos and sketches, describing the historical, technological, economic, and political aspects of the British fishing port of Grimsby. It contains chapters on the years of development; the fishing industry, and how it works; Grimsby Fishing Vessels Owners' Association; development of the fishing vessel; development of fishing gear; radio in the fishing industry; the fishermen of Grimsby; training programs; sales by auction; fish merchandising; cold storage; export of fish; British cod liver oil; coal and oil bunkering; shipbuilding, repairing, and engineering; subordinate trades; research; meteorological services; Ministry of Agriculture, Fisheries, and Food; The White Fish Authority; and fish facts. Also included are plan of the docks, map of the fishing grounds, and diagrams of trawler and seine-net vessels.

Herring Industry Board, Twenty-Fourth Annual Report, 1958, 54 pp., printed, 3s. (42 U. S. cents). Her Majesty's Stationery Office, York House, Kingsway, London W. C. 2, England, July 1959. Reports on the state of the herring fisheries of the North Sea; commercial and statutory matters concerning the Herring Industry Board, the catchers, and shore-based sections of the in-

dustry; marketing; production, research, and development; and related subjects. Contains statistical tables showing the landings and value of catches and disposal of landings during the winter, summer, and autumn seasons; composition of fleets in the Irish Sea area and East Anglia; curing strength and production of cured herring; imports of fresh and frozen herring; disposal of the United Kingdom's total herring landings, excluding imports; and applications for grants and loans. The appendix consists of a summary of pertinent directions having seasonal effect which were issued during 1958. The report states that preparations were made during the year for the introduction of a new Convention to replace the International Fisheries Convention of 1946. A feature of the new Convention which was absent from the earlier one is the inclusion of herring among the species which may become the subject of measures of conservation.

## VESSELS:

"Methods of Assessing Fishing Craft Depreciation," by John Proskie, article, Trade News, vol. 12, no. 2, August 1959, pp. 8-9, illus., printed. Director of Information and Educational Service, Department of Fisheries, Ottawa, Canada. One expense item of considerable importance in any fishing enterprise is depreciation, although it is a noncash expenditure in any particular year. In the studies conducted by the Canadian Department of Fisheries, the "straight-line" method of computing depreciation is used. This consists of simply dividing the total anticipated depreciation (wear, tear, and obsolescence) by the number of years the asset is expected to last. "Although certain parts wear out faster than others, a depreciation rate of 7½ percent closely approximates in fact the average yearly wear and tear of boat and equipment over a period of about 14 years," states the author. Since depreciation is a cost of production, like any other, it should be kept as low as possible. However, the basic principle still holds true that cost accounts should show the true facts in respect to expenditures and returns for the enterprise and the net worth of the asset.

## VITAMIN A:

"Vitamin A<sub>1</sub> Aldehyde in the Eggs of the Herring (Clupea harengus L.) and Other Marine Teleosts," by P. A. Plack, S. K. Kon, and S. Y. Thompson, article, The Biochemical Journal, vol. 71, March 1959, pp. 467-476, printed. The Biochemical Journal, Cambridge University Press, Bentley House, 200 Euston Rd., London N. W. 1, England.

## YEARBOOKS AND DIRECTORIES:

Business Statistics, 1959 Edition (A Supplement to the Survey of Current Business), 357 pp., printed, \$2.25. Office of Business Economics, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) A historical compendium and reference book containing monthly and annual data for over 2,600 statistical measures of the U. S. economy.