



FISH AND WILDLIFE SERVICE PUBLICATIONS

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

- | Number | Title |
|----------|---|
| CFS-3777 | - Canned Fishery Products, 1964 Annual Summary (Revised), 17 pp. |
| CFS-3946 | - Imports & Exports of Fishery Products, 1963-64 Annual Summaries, 12 pp. |
| CFS-3967 | - Chesapeake Fisheries, 1964 Annual Summary, 9 pp. |
| CFS-3969 | - Texas Landings, July 1965, 3 pp. |
| CFS-3970 | - Texas Landings, August 1965, 3 pp. |
| CFS-3971 | - Shrimp Landings, May 1965, 5 pp. |
| CFS-3972 | - New York Landings, September 1965, 4 pp. |
| CFS-3976 | - Alabama Landings, September 1965, 3 pp. |
| CFS-3977 | - Maine Landings, September 1965, 4 pp. |
| CFS-3978 | - Massachusetts Landings, April 1965, 8 pp. |
| CFS-3979 | - Massachusetts Landings, May 1965, 9 pp. |
| CFS-3981 | - Massachusetts Landings, June 1965, 9 pp. |
| CFS-3983 | - Alaska Fisheries, 1964 Annual Summary, 8 pp. |
| CFS-3986 | - Florida Landings, October 1965, 8 pp. |
| CFS-3987 | - Fish Meal and Oil, October 1965, 2 pp. |
| CFS-3989 | - New Jersey Landings, October 1965, 3 pp. |
| CFS-3990 | - Louisiana Landings, October 1965, 3 pp. |
| CFS-3991 | - California Landings, August 1965, 4 pp. |
| CFS-3993 | - Rhode Island Landings, August 1965, 3 pp. |
| CFS-3995 | - Texas Landings, September 1965, 3 pp. |
| CFS-3997 | - Mississippi Landings, September 1965, 3 pp. |
| CFS-4001 | - Rhode Island Landings, September 1965, 3 pp. |
| CFS-4003 | - Maine Landings, October 1965, 4 pp. |
| CFS-4004 | - Florida Landings, November 1965, 8 pp. |
| CFS-4006 | - Shrimp Landings, June 1965, 5 pp. |
| CFS-4010 | - Texas Landings, October 1965, 3 pp. |

Sep. No. 752 - Trawl Cod-End Mesh Size Selectivity Toward Yellow Perch in Lake Erie.

Sep. No. 753 - Skipjack Tuna (*Katsuwonus pelamis*) Resources of the Trust Territory of the Pacific Islands.

Sep. No. 754 - Equipment Note No. 18--A Nekton Ring Net Sampler for Use Aboard Oceanographic Research Vessels.

Sep. No. 755 - Review of U. S. Menhaden Industry, 1965.

SSR-Fish. No. 520 - Bait Shrimp (*Penaeus duorarum*) in Tampa Bay, Florida--Biology, Fishery Economics, and Changing Habitat, by Carl H. Saloman, 19 pp., illus., October 1965.

SSR-Fish. No. 521 - Bureau of Commercial Fisheries Symposium on Red Tide, by James E. Sykes, 11 pp., September 1965.

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE FROM THE U. S. BUREAU OF COMMERCIAL FISHERIES, TROPICAL ATLANTIC BIOLOGICAL LABORATORY, 75 VIRGINIA BEACH DRIVE, MIAMI, FLA. 33149.

On the Tunas of Angola, by H. Vilela and R. Monteiro, Translation No. 5, 40 pp., 1965. (Translated by John P. Wise from the Portuguese, *Boletim da Pesca*, Lisbon, Portugal, Ano XII, no. 64, pp. 11-54 (1959). The first two parts in a series of studies on the biology and fishery of the tunas off the west coast of Africa, sponsored by the Marine Biology Mission of the Overseas Department, Government of Portugal. Part I of this report deals with the methods of the commercial fishery and the catch of tuna off the coast of Angola. Part II deals with the biometry of *Neothunnus albacora* (Lowe), the name used throughout the report for yellowfin tuna.

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

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, November and December 1965, 16 and 18 pp., respectively. (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.

California Fishery Market News Monthly Summary, Part II - Fishing Information, November 1965, 10 pp., illus. (U. S. Bureau of Commercial Fisheries, Tuna Resources Laboratory, P. O. Box 271, La Jolla, Calif.

92038.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the month indicated.

Gulf of Mexico Monthly Landings, Production and Shipments of Fishery Products, November and December 1965, 9 pp. each. (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; Gulf menhaden landings and production of meal, oil, and solubles; fishery imports at Mobile, Ala., Morgan City and New Orleans, La., Miami, Fla., and Houston, Port Isabel, and Brownsville, Tex.; and sponge sales; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, November and December 1965, 4 pp. each. (Market News Service, U. S. Fish and Wildlife Service, P. O. Box 447, 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 North 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, November and December 1965, 21 pp. each. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston, Mass. 02210.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, 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--November 1965, 18 pp. (Market News Service, U. S. Fish and Wildlife Service, 346 Broadway, New York, N. Y. 10013.) 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, November and December 1965, 8 pp. each. (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.

MISCELLANEOUS PUBLICATIONS

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AFRICA:

Articles from Industrias Pesqueras, vol. 39, no. 921, September 1965, illus., printed, single copy 50 ptas. (about US\$0.85). Industrias Pesqueras, Apartado 35, Policarpo Sanz, 21-3, Vigo, Spain:

"Campana de un buque aleman de investigacion en las costas de Africa occidental" (Investigations of a German exploratory vessel on the West African Coast), p. 405.

"Los flotas del Atlantico Africano" (The African Atlantic fleets), pp. 406-407.

ALGAE:

An Introductory Account of the Smaller Algae of British Coastal Waters. Part V. Bacillariophyceae (Diatoms), by N. I. Hendey, Fishery Investigations, Series IV, xxii + 317 pp., plates I-XLV, illus., printed, 1964, £9 (about US\$25). Her Majesty's Stationery Office, London, England. (For sale by Sales Section, British Information Service, 845 Third Ave., New York, N. Y. 10022.)

ANCHOVY:

"Tecnico Conserveras; Proceso de fabricacion de las conservas de anchoa" (Canning technique--anchovy canning method), article, Industria Conservera, vol. 31, no. 315, September 1965, pp. 247-250, printed in Spanish, single copy 25 ptas. (about US\$0.40). Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

ARGENTINA:

Publications, processed in Spanish, available from Departamento de Investigaciones Pesqueras, Direccion General de Pesca, Secretaria de Estado de Agricultura Ganaderia, Buenos Aires, Argentina:

La Pesca de la Merluza en el Mar Argentino, Durante el Ano 1963, Areas de Captura y Rendimientos (The Fishery of Hake in the Argentine Sea During 1963, Areas of Capture and Yield), by Luis Vazquez and others, 22 pp., 1964.

Produccion Pesquera Argentina, Primer Semestre 1965 (Argentine Fishery Production, First six months 1965), 15 pp., September 1965.

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AUSTRALIA:

Articles in Australian Fisheries Newsletter, vol. 25, no. 1, January 1966; Fisheries Branch, Department of Primary Industry, Canberra, Australia: "Fish production declines," p. 6; "Exports and imports rise," p. 7; "Tuna purse-seined in New South Wales," p. 9; "Scallops boost Victorian production," by A. Dunbavin Butcher, pp. 16-17; "CSIRO's fisheries research program," by G. L. Kesteven, pp. 22-23; and "Pearling industry progress," p. 29.

Oceanographical Cruise Reports: Oceanographical Observations in the Indian Ocean in 1963, H. M. A. S. "Diamantina," processed, 1965; Division of Fisheries and Oceanography, Commonwealth Scientific and Industrial Research Organization (CSIRO), Melbourne, Australia:

No. 23 - Cruise Dm 1/63, 175 pp.

No. 24 - Cruise Dm 2/63, 153 pp.

BILLFISH:

"Maryland billfishes," by Frank Schwartz, article, Maryland Conservationist, vol. XXXVIII, no. 4, July-Aug. 1961, pp. 20-24, illus., printed, single copy 25 cents. Maryland Conservationist, State Office Bldg., Box 231, Annapolis, Md.

BONITO:

"Tecnica Conservera--bonito, diagrama del proceso del recorrido" (Canning technique--bonito, diagram of processing line), article, Industria Conservera, vol. 31, no. 314, August 1965, pp. 218-223, printed in Spanish, single copy 25 ptas. (about US\$0.40). Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

CANADA:

Circular No. 7 (a collection of six short articles specially written for freshwater fishermen), 43 pp., illus., printed, September 1965. Fisheries Research Board of Canada, Biological Station and Technological Unit, London, Ontario. Among the articles included are: "The Keeping Qualities of Fish Sausages and Wieners," by A. S. Bogoslawski; "A New Method of Identifying Various Species of Fish," by J. F. Uthe; "Preparation for the Advance of Sea Lamprey Control from Lake Superior into the Lower Great Lakes," by J. J. Tibbles; "A Method for Chilling Bulk Quantities of Freshwater Smelt," by A. W. Lantz; and "Air-Blast Freezers for Freshwater Fish," by A. W. Lantz.

"Coast to coast expansion launched by Fisheries Research Board," article, Trade News, vol. 18, no. 4, Oct. 1965, pp. 3-5, illus., printed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada.

CATFISH:

"Catfishes," by Frank Schwartz, article, Maryland Conservationist, vol. XXXVIII, no. 5, Sept.-Oct. 1961, pp. 21-26, illus., printed, single copy 25 cents. Maryland Conservationist, State Office Bldg., Box 231, Annapolis, Md.

CONSERVATION:

Illinois Resource Management--Fish Conservation Teacher's Manual, by Alvin C. Lopinot, 94 pp., illus., printed, 1965. Division of Conservation Education,

Office of Superintendent of Public Instruction, Department of Conservation, 316 South Second St., Springfield, Ill. 62706. A comprehensive educational program includes learning about the conservation and use of resources. With the increase in population and the recent trend toward enjoyment of the outdoors, it is important that students and adults become knowledgeable about fish conservation. This bulletin contributes to that goal. The author gives a history of fish conservation in Illinois, and discusses limnology--the science which deals with the study of lakes and streams--and fishery biology. A few of the more important, most common, or unusual fish in Illinois are described briefly to show their habits, distribution, and economic value. Fisheries management, pollution, commercial and sport fishing, bait minnow propagation, and lake construction are also discussed.

CUBA:

Articles from Mar & Pesca, vol. 1, Oct. 1965, illus., printed in Spanish, annual subscription \$3.50. Mar & Pesca, Amargura y San Ignacio, Havana, Cuba:

"Un futuro en el mar" (A future in the sea), by R. Bofill, pp. 30-33.

"El puerto pesquero base de la abundancia" (The fishing port as a fount of plenty), by Jose R. Savall, pp. 17-19.

DIRECTORIES:

Fisheries Year Book and Directory, 1965-66, 471 pp., illus., printed, £2 (US\$5.60) postpaid. British-Continental Trade Press Ltd., 222 Strand, London WC2, England. Contains concise summaries of 1964 fishery landings, processing, and other developments in Japan, U.S.S.R., Peru, the United States, Canada, the United Kingdom, Norway, South Africa, France, Germany, Poland, and 27 other countries. A chapter titled "Fishing Vessel Construction and Equipment" reviews developments in that field and lists fishing vessels completed or on order during 1964 in major fishing countries. Another chapter on "Research Results and Progress Report" (1) reviews the condition of fish stocks exploited by Great Britain; (2) describes British research on fishing gear, marine biology, and fish farming; and (3) reports on British studies on fresh fish handling, fish freezing, and processing being carried out at the Torry Research Station (Aberdeen) and the Humber Laboratory (Hull). Other articles discuss (1) developments in fish meal and oil, and (2) fish freezing, storage, transport, and merchandising. Includes a dictionary of fish names in eight languages; a fish supply calendar; a list of fishery organizations and trade associations throughout the world; a list of trade journals of interest to the fishing industry; a world directory giving the particulars of thousands of firms, including fishing companies, wholesalers, exporters, importers, canners, firms dealing in fish byproducts, suppliers of machinery and equipment, shipbuilders, marine outfitters, and cold-storage and transport firms; a list of newly introduced trademarks and brands; and a classified guide for buyers. An unusual feature is a photographic plate showing new postage stamps with fish designs issued during 1964.

--Henry R. Beasley

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EAST GERMANY:

Zeitschrift für Fischerei und Deren Hilfswissenschaften, vol. 13 N. F., no. 1/2, 1965, 164 pp., illus., printed in German with English abstracts. Deutsche Akademie der Landwirtschaftswissenschaften zu Berlin, Berlin, German Democratic Republic. (Available from Neumann Verlag, Dr. Schmincke Allee 19, Radebeul 1, German Democratic Republic.) Some of the articles are: "Der Meeresfischfang und die mit ihm verbundene Fischereiwissenschaft in Bulgarien" (Bulgarian sea fisheries and fishery investigations), by P. Kolarov; "Der Bewuchs an Ostsee-Fischkuttern" (Investigations of ship fouling organisms of Baltic Sea fishery cutters), by H. J. Subklew and S. Schulz; and "Vergleichende Untersuchungen über die Einwirkung verschiedener Herbizide auf submerse Pflanzen und Algen unter Laboratoriumsbedingungen" (Comparative research of the effect of various herbicides on submerged plants and algae under laboratory conditions).

ELECTRICAL FISHING:

Einführung in die Elektrofischerei (Introduction to Electrical Fishing), by Paul F. Meyer-Waarden, Inge Halsband, and Egon Halsband, 304 pp., illus., printed in German, 1965, DM 24.60 (about US\$6.50). Westliche Berliner Verlagsgesellschaft Heenemann KG, 1 Berlin 31 (Wilmersdorf), German Federal Republic. The authors of this book are fishery biologists and physiologists in the Institute for Fisheries Research of the Federal Republic of Germany. They report on their 10 years of studies in the field of electrical fishing. The book has information of interest to professional personnel working in this field and also for practical use by laymen faced with different types of problems in catching or controlling various aquatic species. After an introduction and definition of some of the technical concepts involved, the authors go into some detail about the fundamental principles involved in the application of electrical current to fish. For example, chapter 3 contains, among other things, the mathematical formula which has been developed to precisely determine the varying amounts of current required to shock fish of different sizes. The effect on the metabolism of fish when electrical current passes through them is given as well as differences in salt water and fresh water application of this process. The limits on pulse rates and the narcotizing pulse rate for different species of fish are listed and many other fundamental principles applicable in this field are discussed. There follows a short chapter on the possible uses of electrical fishing devices for attracting, repelling, stupefying, or killing fish. Various conditions for use or application of the process are given, such as, selecting out predators from an area inhabited by different species, catching fish which evade conventional types of gear, directing fish away from turbines, etc. Other situations applicable to both fresh- and salt-water fishery resources are mentioned. Following this there is a lengthy chapter describing the various kinds of electrical fishing gear which have been used and are available. Manufacturers names are also indicated and many excellent photographs of the actual devices are shown. The application of appropriate gear for attracting as well as repelling fish is described and the application of the appropriate gear for fresh-water and salt-water operations is also

given in quite some detail. The proper application dependent on the species is also described and runs the range from sardines to whales, including certain shellfish such as crabs. Other possibilities for use of the gear are cited. The authors indicate possibilities for use in capturing crocodiles and also inhibiting the growth of bacteria, particularly in certain foods. The special and more difficult conditions one faces in using the gear in fresh water are treated in a special chapter devoted to this subject. The care and the upkeep of the equipment when used in fresh-water areas are discussed. Some general description of specifications for construction and operation of such equipment are given. In addition there is a chapter on the safety requirements which must be observed in order to protect personnel operating such gear. The final chapter cites laws and regulations concerning the operation of electrical fishing devices in various jurisdictions of the Federal Republic of Germany, including provincial laws and regulations. A somewhat lengthy bibliography is provided which reveals the extensive work conducted earlier. The book, in addition to reflecting much of the authors' original work also draws together much which is useful from earlier sources. A glossary of technical terms is given in German, English, French, and Russian. A qualified list of patents in the electrical fishing field is also provided.

--W. H. Stoltzing

FISH:

Fishes of the World in Color, by Hans Hvass, illustrated by Wilhelm Eigener, translated by Gwynne Vevers, 156 pp., printed, 1965, \$4.95. E. P. Dutton and Co., Inc., 201 Park Ave. South, New York, N. Y. 10003. Some 1,000 species of fish from all over the world are to be found in this book. Those selected are principally commercial fish and those caught by anglers. But, in addition, as many species as possible of aquarium fish have been included. Each species is illustrated with a special colored sketch, accompanied by text giving some pertinent facts and its geographical distribution. The fish are divided into ray-finned fish (bony fish, bony ganoids, sturgeon, etc.); coelacanth; lungfish; cartilaginous fish (rabbitfish, rays and skates, shark and dogfish), and cyclostomes (lamprey and hagfish). The English name of each fish shown in the book is printed in bold type, followed by the scientific or Latin name printed in italics. An index of the common names is included. Anyone interested in fisheries will find this book interesting and useful.

--Joseph Pileggi

FISHING GROUNDS:

"Las pesquerías del Indico Austro-Africano" (The fishing grounds of India-South Africa), article, Industrias Pesqueras, vol. 39, no. 919, August 1965, pp. 362-363, illus., printed in Spanish, single copy 50 ptas. (about US\$0.85). Industrias Pesqueras, Apartado 35, Policarpo Sanz, 21-2, Vigo, Spain.

FISH MEAL:

"El 'boom' Peruano de la 'fish meal.' II. La fluctuación económica y el futuro" (The 'boom' from the Peruvian 'fish meal.' II. Economic fluctuation of the future), article, Industrias Pesqueras, vol. XXXIX, no. 916, June 1965, pp. 284-285, illus., printed in Spanish, single copy 50 ptas. (about US\$0.85). Indus-

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trías Pesqueras, Apartado 35, Policarpo Sanz, 21-2, Vigo, Spain.

FOOD AND AGRICULTURE ORGANIZATION:

Indo-Pacific Fisheries Council Proceedings, 11th Session, Kuala Lumpur, Malaysia, 16-31 October 1964, Section I, 97 pp., processed in English, 1965, US\$1. IPFC Secretariat, FAO Regional Office for Asia and the Far East, Bangkok, Thailand, 1965. (Sold by Publications Section, FAO, via delle Casaccia, Rome, Italy.) The full proceedings of this session of the Council consists of three sections. This is a report of Section I. Section II comprises the Technical Papers presented at the meeting and Section III contains the papers read at the symposium.

FRANCE:

"How France Trains Its Crews--Nine-Month Course at Boulogne School," article, World Fishing, Nov. 1965, pp. 39-40, illus., printed in English, 3s. 6d. (about US\$0.55). Grampian Press Ltd., The Tower, 229-243 Shepherd's Bush Rd., Hammersmith, London W6, England. Describes the subject matter and educational theory of apprentice training for fishermen at the secondary school level in France.

INDIA:

Development of Fisheries in the Cochin Area, An Export Oriented Project Report, 110 pp., printed in English, January 1965. Marine Products Export Promotional Council, Ernakulam, Kerala State, India. Describes how India's fishery export trade came to be centered in the Cochin area of southeast India. Surveys that area's fishery resources, fleet, processing and support facilities, and export markets. Makes recommendations for further development by carrying out oceanographic and fishery research surveys; improving the fishing fleet, harbors, processing equipment, transport facilities; providing training; and conducting more intensive marketing. The report was prepared at the request of an Inter-Ministerial Group in the Indian Government which met November 7, 1964, in New Delhi to consider ways of increasing India's fishery exports. Similar export-oriented reports were planned for other areas including Goa and Ratnagiri.

INDUSTRIAL PRODUCTS:

Fishery By-Products Technology, by Julius Brody, 245 pp., illus., printed, 1965, \$12.50 U.S., \$13.50 foreign. The Avi Publishing Co., Inc., P.O. Box 388, Westport, Conn. This is a comprehensive summary of the manufacture of practically all fishery byproducts and of the industrial application of those products. The foreword points out: "If meaningful advances are to be made in the utilization of the oceans for the feeding of man, if lowest costs of edible fishery products are to be achieved, attention must be paid to by-product utilization. Optimal utilization of by-products will not only result in better utilization of our resources but also in lower-cost foods." Emphasis is placed on the lesser known products in order to show their valuable potential to fishery processors and allied manufacturers. Recent developments in processing and use of the better known byproducts are considered in detail. Descriptions of inexpensive manufacturing procedures designed for the benefit of developing seacoast countries are given. The book is divided into three major parts: Part I describes the byproducts obtained

from the outer portion of fish, i.e., skins and scales; Part II discusses derivatives from entrails; and Part III deals with byproducts obtained from fish scrap remaining after gutting and filleting, or by using the whole fish, e.g., trash fish or industrial fish. The individual chapters deal with liquid fish glue; gelatin and isinglass production; pearl essence; leather production from fish skins; fish-liver oils; non-fat components of fish oils; production of vitamin concentrates; salmon egg byproducts and other salmon canery waste; insulin, biochemical and pharmaceutical products of special interest; fish meal production; general considerations of fish oils; fish-body oil; refining and utilization of fish oils; production of fish albumin, peptones, and amino acids; animal feed; plant food; and last but not least, fish protein concentrate (fish flour). Each chapter ends with a bibliography, and there is an adequate overall index. Food technologists, food scientists, nutritionists, research chemists, fishery plant operators, biochemists, plant food and animal feed manufacturers, students, economists, dealers, and others will find this book a useful tool for study and reference.

—Joseph Pilaggi

JAPAN:

Bulletin of the Faculty of Fisheries, Nagasaki University, no. 19, 195 pp., illus., printed in Japanese with English summaries, October 1965. The Faculty of Fisheries, Nagasaki University, Nagasaki, Japan. Some of the articles are: "On the Porpoises Caught by the Salmon Fishing Gill Net in Bering Sea and the North Pacific Ocean," by K. Mizue and K. Yoshida; "Analysis of Fish-Finder Record - VI. On the fish-finder for biomeasurement," by K. Shibata; "On the Tuna Long-Line Fishing Ground in Summer in the Southern Waters of Sumatra," by S. Abe, S. Yada, T. Takada, and S. Inoue; "The Feeding of Rainbow Trout Fry with Natural Foods and the Maximal Growth in their Younger Stages," by S. Shirahata.

LOBSTER:

"The American lobster," by D. G. Wilder, article, Trade News, vol. 18, no. 4, Oct. 1965, pp. 6-11, illus., printed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada. Describes the American lobster (*Homarus americanus*); distribution, feeding, and movements; molting, growth, and age; maturity, mating, and egg laying; disease and parasites; fishing gear and landings; fishing seasons; minimum size limits; protection of egg-bearing females; offshore fishery; and storage and marketing.

"En el paraíso de la langosta" (In the lobster paradise), by Pedro Morales, article, Mar & Pesca, vol. 1, October 1965, pp. 34-38, illus., printed in Spanish, annual subscription \$3.50. Mar & Pesca, Amargura y San Ignacio, Havana, Cuba.

"Notes on trends in the abundance of the west coast rock lobster," by A. E. F. Heydorn, G. C. Newman, and G. S. Rossouw, article, The South African Shipping News and Fishing Industry Review, vol. XX, no. 10, October 1965, pp. 91, 93, 95, 97, 99, 103, illus., printed, single copy 30¢ (about US\$0.45). Thomson Newspapers, South Africa (Pty.) Ltd., Trust House, Thibault Sq., Box 80, Cape Town, South Africa Republic.

MARINE BIOLOGY:

"On the biology of the commoner gadoids in Mann waters," by A. K. Nagabhushanam, article, Journal of

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the Marine Biological Association of the United Kingdom, vol. 45, no. 3, pp. 615-657, illus., printed, October 1965, \$13.50. Cambridge University Press, 32 East 57th St., New York, N. Y. 10022.

NORWAY:

Fiskeristatistikk 1963 (Fishery Statistics 1963), Norges Offisielle Statistikk XII 179, 83 pp., illus., printed in Norwegian with English table of contents, 1965. Fiskeridirektøren (Director of Fisheries of Norway), Bergen, Norway. Contains statistical summaries on the quantity and value of the yield in principal Norwegian sea fisheries; quantity and value of each species; disposition of landings; production of processed fishery products; and foreign trade. Also contains data on prices, subsidies, income, investments, and loans in the Norwegian fishing industry; data on Norwegian fishermen and fishing vessels; and related facts and figures.

Articles from Tidsskrift for Hermetikindustri (Norwegian Cannery Export Journal), vol. 51, illus., printed in Norwegian, foreign annual subscription kr. 20.00 (US\$2.80), Norske Hermetikfabrikers Landsforening, Stavanger, Norway:

"Industriell trålfiske dobbeltfrysing av fisk norsk filetindustri" (Industrial trawl fishery, double freezing of fish, and Norwegian filet industry), by Gustav Lorentzen, no. 11, Nov. 1965, pp. 442-451.

"Industriell optøning af fisk" (Industrial thawing of fish), no. 10, Oct. 1965, pp. 385-393, and 410.

OCEANOGRAPHY:

"Helztu nidurstodur fundar norskra, sovezkra og islenzkra haf og fiskifraedinga, haldinn a Seydisfirdi 20-22 juni 1965" (Major conclusions of the meeting of oceanography fishery specialists from Norway, Russia, and Iceland held at Seydisfirdi on June 20-22, 1965), article, Aegir, vol. 58, no. 15, pp. 248-249, illus., printed in Icelandic, Sept. 1, 1965. Aegir, Rit Fiskifelags Islands, Reykjavik, Iceland.

Pendulum Gravity Measurements at Sea, 1936-1959, Lamont Geological Observatory Contribution No. 807, by J. L. Worzel, xx + 420 pp., illus., printed, October 1965, \$28. John Wiley & Sons, Inc., Publishers, 605 Third Ave., New York, N. Y. 10016. Records for the first time 3,000 new gravity measurements made with pendulums in submarines--two-thirds of all the measurements ever made. It serves as a framework upon which surface-ship observations can build, and represents a first view of the structure of what has been called the normal part of our planet--the ocean. The observations are arranged so that they can be found either by cruise or by geographical area. Base stations are detailed in a special section. Another feature is the presentation of all the gravity observations taken to date superimposed on the oceanic topography (both as free-air and as Bouguer anomalies) on charts suitable for mounting as a composite world chart. Interpretations of these data are given from both a geodetic and structural view of the world. Special attention is given to the physics of the measurement techniques. Apparatus modifications and improvements are detailed, and the resulting geodetic, geophysical, and geological implications are discussed at length.

PERU:

"The Anchovy Crisis," article, The Economist, vol. CCXVII, no. 6383, December 25-31, 1965, pp. 1,429-1,430, illus., printed in English, annual subscription £6 10s. (about US\$18.20). The Economist, 25 St. James Street, London SW1, England. Describes the oceanic conditions and economic impact of the recent decline of the Peruvian anchovy resource.

POLAND:

Articles from Prace Morskiego Instytutu Rybackiego w Gdyni (Reports of the Marine Fisheries Institute at Gdynia), vol. 13, series A (1965), Oceanography and Fishery Biology, printed in Polish with English summaries. Wydawnictwo Morskie, Gdynia, Poland:

"Biological characteristic of cod (*Gadus morrhua callarias* L.) from Bornholm Basin during 1957-1960," by E. Stanek, pp. 57-84.

"Eel (*Anguilla anguilla* L.) of the Wista Estuary," by J. Filuk, pp. 101-114.

"Age and rate of growth of perch (*Perca fluviatilis* L.) from the Wista Estuary," by H. Krawczak, pp. 115-130.

POLLUTION:

Critical Review of the Effects of Synthetic Detergents on Aquatic Life, by R. Marchetti, Studies and Reviews General Fisheries Council for the Mediterranean No. 26, 34 pp., processed, October 1965, GFCM Secretariat, Food and Agriculture Organization of the United Nations, Rome, Italy. Discusses "pollution due to surface active agents (surfactants), that is, that group of substances used to prepare commercial detergents." Covers foam formation; eutrophication; and toxic action including toxicity limits, variations of toxicity due to biological factors, variations of toxicity due to nonbiological factors, probable causes of the surfactants' toxicity and histological effects, and toxic effects of the surfactants on invertebrates, algae, and aquatic plants.

REFLECTION OF LIGHT:

Articles from Journal of the Marine Biological Association of the United Kingdom, vol. 45, no. 3, pp. 711-737, 683-703, illus., printed, October 1965, \$13.50. Cambridge University Press, 32 East 57th St., New York, N. Y. 10022: "Reflexion of light by external surfaces of the herring, *Clupea harengus*"; and "Studies on reflexion of light from silvery surfaces of fishes, with special reference to the bleak *Alburnus alburnus*," by E. J. Denton, F. R. S. and J. A. C. Nicol.

SALMON:

"Fishing Treaties and Salmon of the North Pacific," by W. F. Thompson, article, Science, vol. 150, no. 3705, December 31, 1965, pp. 1786-1789, illus., printed. Reprints available from College of Fisheries (Att: Dean Richard Van Cleave), University of Washington, Seattle, Wash., 98105. Discusses present treaties, economic in intent, and claims they cannot be made effective for conservation without more knowledge. Discusses present state of knowledge and how attempts are made at conservation. Appeals to scientists familiar with principles of ecology, genetics, speciation, geographic distribution, and population problems to respond and lend influence to formulation of a scientific basis for these treaties and for conservation of our fisheries in general.

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

The Possibility of Salmon Smolt Passing Unharmed through Power Plant Turbines when Descending to the Sea, by Erik Monten (Translation from Om Utvandrande Laxungars Möjligheter att Oskadda Passera Genom Kraftverksturbiner (Preliminärt Meddelande) Laxforskningsinstitutet, U. S. Joint Publications Research Service for the Fish-Passage Research Program, U. S. Bureau of Commercial Fisheries, Seattle, Wash.

SALMON AND TROUT:

"Investigation and management of Atlantic salmon and trout, Part 1--the research program, Part 2--the management program," article, Trade News, vol. 18, no. 2-3, August-September 1965, pp. 3-13, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada. Part 1 discusses the research by the Biological Stations, Fisheries Research Board of Canada, at St. Andrews, New Brunswick, and St. John's, Newfoundland. Part 2 concentrates on the management program.

SHAD:

"The American shad," by Alfred L. Meister, article, Maine Fish and Game, vol. VII, no. 2, Fall 1965, pp. 9-10, illus., printed, single copy 25 cents. Maine Fish and Game Magazine, Room 600, State Office Building, Augusta, Maine 04330.

SOUTH AMERICA:

Anuario de Pesca 1964/1965 (Fisheries Yearbook 1964/1965), 146 pp., illus., printed in Spanish, \$10. Ediciones Sudamerica S. A., Av. Wilson 911, Lima, Peru. Includes articles on: "Breve historia de la pesqueria Peruana" (Early history of the Peruvian fisheries), by W. F. Doucet and Hermann Einarsson; "Nuestra pesqueria y su futuro" (Our fisheries and their future), by I. V. Aguirre; "Bancos de pesca--comercializacion y mercados para pescado" (Fishing Areas--distribution and marketing of fish), by W. F. Doucet; "Recurso numero 1: anchoveta" (Resource no. 1: anchovy), by Hermann Einarsson; "Record mundial: 9 millones de toneladas" (World record: 9 million tons), refers to Peru's increase in fishery production from 1960 through 1964; and "Problemas y soluciones en Chile" (Problems and solutions in Chile), discusses Chile's fishing industry.

"La Evolucion Pesquero Conservera En Sud America" (The Development of Fish Canning in South America), by Mareiro, article, Industria Conservera, vol. 31, no. 316, October 1965, pp. 271-272, printed in Spanish, single copy 25 ptas. (US\$0.40). Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

SPAIN:

Articles from Industria Conservera, printed in Spanish, single copy 25 ptas. (about US\$0.40). Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain:

"La exportacion gallega de conservas de pescado" (Galician export of canned fish), vol. 31, no. 314, August 1965, pp. 213-217.

"Mercados--posibilidades de venta de conservas de pescado espanolas en el reino unido" (Markets--sales possibilities of Spanish canned fish in the United Kingdom), vol. 31, no. 315, Sept. 1965, pp. 255-259.

"Tecnica Conservera Anchoa" (Anchovy Canning Technique), vol. 31, no. 316, October 1965, pp. 274-281.

SUCKERS:

"Know your Maryland fishes: suckers," by Frank J. Schwartz, article, Maryland Conservationist, vol. 34, no. 5, Sept.-Oct. 1962, pp. 18-23, illus., printed, single copy 25 cents. Maryland Conservationist, State Office Bldg., Box 231, Annapolis, Md.

TUNA:

"Atunes y bonitos" (Tuna and bonito), article, Mar & Pesca, vol. 1, October 1965, pp. 27-29, illus., printed in Spanish, annual subscription \$3.50. Mar & Pesca, Amargura y San Ignacio, Havana, Cuba.

"The Catch Statistic Data for the Japanese Tuna Long-Line Fishery in the Atlantic Ocean and Some Simple Considerations on It," by Toshio Shiohama, Masako Myojin, and Hisao Sakamoto, Report of Nankai Regional Fisheries Research Laboratory, No. 21, 131 pp., illus., printed in Japanese with English summary, March 1965. Nankai Regional Fisheries Laboratory, Sanbashi-dori, Kochi, Japan. Includes detailed data on catch records from 1956 through 1962. All charts and hook-rate tabulations are in Japanese and English.

"Changes in tuna quality, and associated biochemical changes, during handling and storage aboard fishing vessels," by I. Barrett and others, article, Food Technology, vol. 19, no. 12, December 1965, pp. 108-117, illus., printed, \$14.50. Institute of Food Technologists, Suite 1350, 176 W. Adams St., Chicago, Ill. 60603.

"Le thon rouge en Mer du Nord" (Bluefin tuna of the North Sea), by Edouard Priol, article, France Pêche, no. 100, November 1965, pp. 71-73, illus., printed in French, 3.2 F. (about US\$0.65). France Pêche, Boite Postale 179, Lorient, France.

Reprints from Bulletin of the Japanese Society of Scientific Fisheries, printed in Japanese with English summary; Tokai Regional Fisheries Research Laboratory, Tsukisima, Chuo-ku, Tokyo, Japan:

Studies on the Retention of Meat Color of Frozen Tuna--I. Absorption Spectra of the Aqueous Extract of Frozen Tuna Meat Undergoing Discoloration, by Masamichi Bito, vol. 30, no. 10, Oct. 1964, pp. 847-854, illus. with colored plates.

---II. Effect of Storage Temperature on Preventing Discoloration of Tuna Meat During Freezing Storage, by Masamichi Bito, no. 7, July 1965, pp. 534-539, illus.

---III. The Discoloration of Tuna Meat During the Storage at Temperature of Freezing Point, by Masamichi Bito, vol. 31, no. 7, July 1965, pp. 540-545, illus.

UNDERWATER OBSERVATIONS:

"A towed underwater camera," by R. W. Blacker and P. M. J. Woodhead, article, Journal of the Marine Biological Association of the United Kingdom, vol. 45, no. 3, pp. 593-597, illus., printed, October 1965, \$13.50. Cambridge University Press, 32 East 57th St., New York, N. Y. 10022. A description is given of an underwater camera unit mounted inside a high-speed tow-net body. The method of using this apparatus

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for surveying the sea bed is described. The illustrations show that good quality results can be obtained when the camera is towed at speeds of around 5 knots. By keeping the camera within a fathom from the bottom, satisfactory photographs can be obtained even where turbidity prevents photography at greater ranges.

UNITED KINGDOM:

"The fecundity of long rough dabs in the Clyde Sea area," by T. B. Bagenal, article, Journal of the Marine Biological Association of the United Kingdom, vol. 45, no. 3, pp. 599-606, illus., printed, October 1965, \$13.50. Cambridge University Press, 32 East 57th St., New York, N. Y. 10022.



A FISH CAN BE A LANDLUBBER

Some fish like being out of the water. The mudskipper, a small marine fish, seems right at home on land. They can stay out of water at least 90 percent of the time with only brief returns to the sea to sip some water, reports a zoologist at the Los Angeles University of California. They usually just immerse their mouths, he observed, unless they are disturbed and dive completely in the water.

Mudskippers could survive out of water for as long as a day and a half, stated the zoologist, who has been studying those fish on the island of Nosy Be, just off the coast of Madagascar. Even during the heat of the day the fish usually moistened their general body surface less than once an hour.

This ability to adapt to land gives the mudskippers more opportunities to survive, the zoologist believes. By being able to pursue insects on land, the fish are less dependent on marine organisms for food. Possibly the phenomenon of the mudskipper tells the story of how our ancestors originally emerged from the sea.

Most fish cannot survive out of water. When they do, drastic physiological changes occur, similar to those when human beings dive into water. Heart and metabolic rates slow down dramatically, and lactic acid piles up in tissues. However, none of these things happens to mudskippers when they stay on land, out of water. (Science News Letter, December 12, 1964.)



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