



## FISH AND WILDLIFE SERVICE PUBLICATIONS

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

- | Number            | Title   |
|-------------------|---|
| CFS-II92          | - Gulf Fisheries - 1953, Annual Summary, 10 pp.   |
| CFS-1198          | - Massachusetts Landings, July 1955, 5 pp.  |
| CFS-1205          | - Frozen Fish, August 1955, 8 pp.   |
| CFS-1209          | - Texas Landings, August 1955, 3 pp.  |
| CFS-1210          | - Maine Landings, July 1955, 4 pp.  |
| CFS-1211          | - Fish Meal and Oil, August 1955, 2 pp.   |
| CFS-1212          | - Alabama Landings, July 1955, 2 pp.  |
| CFS-1213          | - Florida Landings, July 1955, 6 pp.  |
| CFS-1214          | - New Jersey Landings, August 1955, 2 pp.   |
| CFS-1217          | - North Carolina Landings, August 1955, 2 pp.   |
| CFS-1219          | - Mississippi Landings, July 1955, 2 pp.  |
| CFS-1222          | - Maine Landings, August 1955, 4 pp.  |
| FL -336z          | - Quarterly Outlook for Marketing Fishery Products, 33 pp.  |
| Sep. No. 419      | - Bone Detection in Fish by X-Ray Examination.  |
| Sep. No. 420      | - How to Cook Frozen Fish Without Prethawing - Part I - Determination of Optimum Internal Temperature for Baked Frozen Halibut Steaks.  |
| Sep. No. 421      | - Research in Service Laboratories (November 1955):<br>Effect of Cooking Oil Quality and Storage Conditions on the Keeping Quality of Frozen Fried Fish Sticks.<br>Freshness Tests for Tuna.<br>Commercial-Scale Freezing-Fish-at-Sea Trip Made by Delaware.<br>Feeding Studies with Menhaden Press Cake Pilot Reduction Plant.<br>Conference of Contractors Doing Research on Southern Oysters.<br>Cold-Storage Life of Fresh-Water Fish--No. 2 (Yellow Perch, Crappie, White Bass, Utah Chub, and Squawfish). |
| SSR-Fish. No. 161 | - Zooplankton Volumes off the Pacific Coast, 1954, 37 pp., processed, September 1955.   |
| SSR-Fish. No. 163 | - Commercial Fishery for Chubs (Ciscoes) in Lake Michigan Through 1953, by Ralph Hile and Howard J. Buettner, 52 pp., illus., processed, October 1955.  |

Sport Fishery Abstracts, vol. 1, no. 1, Abstracts 1-160, 46 pp., processed, July 1955.

Sport Fishery Abstracts, vol. 1, no. 2, Abstracts, 161-314, 56 pp., processed, October 1955.

THE FOLLOWING SERVICE PUBLICATION IS AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED:

Gulf States Production of Fishery Products for Selected Areas, 1954, by S. C. Denham, 35 pp., illus., processed, November 1955. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 609-11 Federal Bldg., New Orleans 12, La.) This report consists of two parts. The first part discusses the trends and conditions in the Gulf Coast fisheries in 1954 and gives a resume of the individual fisheries. For the shrimp fishery a detailed account is given of the general conditions, total landings, composition of the landings by species, ex-vessel prices at certain areas in Louisiana and Texas, the canned pack, and data on cold-storage freezings and holdings. Production and market conditions for the oyster, blue crab, and finfish fisheries are included in the summary, as well as the significant developments in these fisheries. The second part contains statistical tables--a monthly fishery production index for selected Gulf States areas; total landings by areas and species; total landings of selected areas by species and months; landings of fishery products by areas and species by months; crab meat production by areas and months; fishery imports through the New Orleans Customs District and Port Isabel and Brownsville, Tex.; and weekly canned oyster and shrimp packs. Tables showing the monthly range of wholesale prices of fishery products on the New Orleans French market, a summary of Gulf shrimp landings for selected areas, monthly LCL express shipments from New Orleans by months and by destination, and fishery products market classifications in the Gulf area are also included. The areas covered by the report are: Mobile and Bayou LaBatre, Ala.; Pascagoula and Biloxi, Miss.; New Orleans and Lower Mississippi River, Golden Meadow, Houma, Chauvin, Dulac, Morgan City, Berwick, Patterson, and Delcambre, La.; Galveston, Freeport, Port Lavaca, Palacios, Aransas Pass, Rockport, Corpus Christi, Port Isabel, and Brownsville, Tex.

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Check List of the Fishes and Fishlike Vertebrates of North and Middle America North of the Northern Boundary of Venezuela and Colombia, by David Starr Jordan, Barton Warren Evermann, and Howard Walton Clark, 671 pp., printed, \$3, 1955. This check list was issued originally in 1930.

Since there was no prospect of a complete revision, and because it will continue to be a valuable reference for ichthyologists and fishery conservation workers, the check list was re-issued in its original form. It comprises a list of all the fishes and fishlike vertebrates known to occur in the waters of north and middle America; more specifically all of continental America north of the Isthmus of Panama, and the outlying islands including the West Indies, the Greater and lesser Antilles, Greenland, Iceland, and the islands off the Pacific coast of Central America, Mexico, the United States, and Alaska. The salt-water species on the northern coasts of Colombia and Venezuela have been included. Those of the Galapagos, the Sea of Okhotsk, and the west coast of Kamchatka are not included. The list gives (1) the names of all species and subspecies that the authors admitted as valid; (2) as many of the vernacular or common names for each species as were readily obtainable; (3) the known geographic distribution of each species; (4) the reference to the original description of the species; and (5) the reference to every real synonym.

Limnological Effects of Fertilizing Bare Lake, Alaska, by Philip R. Nelson and W.T. Edmondson, Fishery Bulletin 102 (From Fishery Bulletin of the Fish and Wildlife Service, vol 56), 25 pp., illus., printed, 20 cents, 1955.

Relative Abundance of Maryland Shad, 1944-52, by Charles H. Walburg, Research Report 38, 20 pp., illus., printed, 15 cents, 1955. Each year the Maryland Department of Research and Education obtains catch and effort statistics from all commercial shad fishermen in Maryland waters as part of the Maryland Management Plan. These data for the years 1944 to 1952 were used in conjunction with a tagging experiment, to estimate fishing effort, fishing rate, catch, size of run, and spawning escapement for each of these years. It was found that effort had increased almost two-fold, despite the operation of a plan designed to keep it constant. The evaluation of the relation between factors which might cause changes in the size of the Maryland shad population is complicated because the effect of the Virginia shad fishery on the Maryland shad population is unknown. Without knowledge of this effect, the influence of other factors affecting the Maryland population is obscured. Before Maryland can intelligently manage her shad fishery, Virginia must establish a system of collecting catch and effort statistics. With each State collecting these statistics, the shad fishery of Chesapeake Bay could be studied as a unit to determine the best management methods.

## MISCELLANEOUS PUBLICATIONS

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

"Age and Length Composition of the Sardine Catch off the Pacific Coast of the United States and Mexico in 1954-55," by Frances E. Felin, John MacGregor, Anita E. Daugherty, and Daniel J. Miller,

article, California Fish and Game, vol. 41, no. 4, October 1955, pp. 285-293, printed. California Department of Fish and Game, 926 J Street, Sacramento 14, Calif. This report on age and length composition of the catch of sardines (Sardinops caerulea) off the Pacific Coast of North America is the ninth of a series which gives similar data from 1941-42 to the present season.

The American Ephemeris and Nautical Almanac for the Year 1957, 586 pp., illus., printed, \$4.50. Nautical Almanac Office, U. S. Naval Observatory, Washington, D. C. (For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C.)

ASPERGILLUS NIGER (Sterigmatocystis (Diplomstephanus) Nigravan Tiegham, 1877) en Pesca-do Salado, Seco, by Victor H. Bertullo and Marcos Herrera C., 7 pp., printed in Spanish. (Reprinted from Anales de la Facultad de Veterinaria, Tomo VI, no. 2, pp. 61-66.) Universidad de la Republica, Republica Oriental del Uruguay, Montevideo, Uruguay, 1954.

"The Belugas of Hudson Bay," by James Kinloch, article, Trade News, vol. 8, no. 1, July 1955, pp. 3-7, illus., printed. Department of Fisheries of Canada, Ottawa, Canada. Describes the white whale, or beluga (Delphinapterus leucus), one of the smaller members of the whale family closely related to the dolphin and porpoise. Methods of capture are also described.

Bollettino di Pesca, Piscicoltura e Idrobiologia, Anno XXX, vol. IX (nuova serie), fasc. 2, Luglio-Dicembre 1954, pp. 139-211, illus., printed in Italian with short summaries in French and English. Laboratorio Centrale di Idrobiologia, Piazza Borghese 91, Rome, Italy, 1955. Contains, among others, the following articles: "Relazione sul' Attivita del Laboratorio Centrale di Idrobiologia durante il 1954;" "Esperimenti di Ripopolamento di Trote Mediante Scatole di Incubazione Collocate nei Corsi d'acqua;" "Missione Sperimentale di Pesca nel Cile e nel Peru - Pesci Marini Peruviani;" "Osservazioni Oceanografiche Eseguite sui Campi di Pesca dell' Alalunga delle Isole Eolie."

"Carp Cooking," by J. Almus Russel, article, Pennsylvania Angler, vol. 24, no. 8, August 1955, pp. 10-11, 32, illus., printed, single copy 10 cents. Pennsylvania Fish Commission, South Office Bldg., Harrisburg, Pa. Gives various methods of cooking carp: boiled (modern and century-old recipes); poached with curry cream sauce; soup; steamed with wine brown sauce; chowder; broiled; stewed; fried; scalloped with white sauce; hash; and panfried carp.

(Ceylon) Administration Report of the Acting Director of Fisheries for 1954 (Part IV--Education, Science and Art), by H. C. Gunewardena, 30 pp., printed. Government Publications Bureau, Colombo, Ceylon, July 1955. Progress reports for the year 1954 are presented by the Department of Fisheries' Administration and Socio Economic Division, Development Division, and Research Division. Among the subjects covered are: enforcement of fisheries

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regulations; cooperative development of the fisheries; loans granted to individual fishermen, unregistered fishing groups, and registered cooperative fishing societies; extension of new fishing methods and their development; mechanization of fishing craft; fresh-water fishery development; fish marketing; curing of fishery products; and manufacture of fishery by-products. Statistical data are also included on the production of fresh and cured fish, and imports and exports of fishery products and by-products.

Clam (MYA ARENARIA) Breakage in Maine, by Robert L. Dow, Dana E. Wallace and Louis N. Taxiarchis, Research Report no. 15, 2 pp., processed. Maine Department of Sea and Shore Fisheries, Augusta, Me., January 1954.

Codificacion de Estadisticas Pesqeras (Codification of Fisheries Statistics), by Carlos Gonzalez, Publicacion Miscelanea No. 346, 22 pp., processed, in Spanish. Ministerio de Agricultura y Ganaderia, Buenos Aires, Argentina, 1951.

Contribution a L'etude des Especes du Genre TRACHURUS et Specialement du TRACHURUS TRACHURUS (Linne 1758), (Contribution to the Study of the Species in the Genre Trachurus and Especially of *Trachurus trachurus*), by R. Letaconnoux, Memoires No. 15, 78 pp., illus., printed in French. Office Scientifique et Technique des Peches Maritimes, 59 Avenue Raymond-Poincare, Paris XVI, France, June 1951.

The Edge of the Sea, by Rachel Carson, 276 pp., illus., printed, \$3.95. Houghton Mifflin Co., 432 - 4th Ave., New York 16, N. Y.

Estimation of Growth and Mortality in Commercial Fish Populations, by J. A. Gulland, Fishery Investigations, series II, vol. XVIII, no. 9, 48 pp., printed, \$1.08. British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. This paper attempts to analyze the procedure of market sampling and the subsequent analysis from a mathematical and statistical viewpoint. Part I deals with the direct sampling for length and the sampling for age distributions. Part II describes how a knowledge of the commercial landings can give a knowledge of the composition of the true natural population. Part III describes how a knowledge of this can be used to give, as far as possible, accurate and unbiased estimates of the parameters of growth and mortality of the natural population.

The Euphausiacea (Crustacea) of the North Pacific, by Brian P. Boden, Martin W. Johnson, and Edward Brinton, Contribution No. 796 (From Bulletin of the Scripps Institution of Oceanography, vol. 6, no. 8, pp. 287-400), illus., printed, \$1.50. University of California Press, Berkeley 4, Calif., 1955. As part of the Marine Life Research Program of the Scripps Institution of Oceanography (a member of the California Cooperative Oceanic Fisheries Investigations) an increased effort is being made to describe and evaluate the various organic factors that are important in the biological economy of the sea. Among the several groups of zooplankton

organisms that are being studied are the euphausiid shrimp. These highly pelagic crustaceans, popularly known as "krill," occur in large swarms in all oceans in both neritic and oceanic waters. They are considered second in importance only to the copepods as basic animal food in the sea but often exceed the copepods in mass and numbers, especially at greater depths. The present report deals with the group taxonomically on a wide geographic basis. The chief purpose of the report is to provide an essential tool with complete descriptions and illustrations to facilitate further study of the biology of the euphausiids and their relation to the pelagic community of the Pacific. Such a study is now under way, and it is believed that application of knowledge of the various species, their geographic ranges, concentrations, and reproductive areas will yield pertinent information relative to the importance of different oceanic currents and water masses in the marine ecology of our coasts. Among the marine animals that are known to feed upon the euphausiids are especially such fish as the herring and sardine, and also the whalebone whales whose diet is, despite their huge size, almost exclusively plankton. The place of euphausiids in the diet of the California sardine and other local fishes is presently under investigation in connection with the Marine Life Research program.

(FAO) Report on the First FAO-ETAP International Fish Marketing Training Centre, Hong Kong, 11 July - 31 August 1954, 161 pp., printed, \$1.50. Food and Agriculture Organization of the United Nations, Rome, Italy, September 1955. (For sale by Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.) This report describes the organization and conduct of the International Training Centre and the effort to promote a closer knowledge and understanding of the particular problems in the Indo-Pacific Region. The report consists of two sections. Section I provides a factual account of the preparation and setting-up of the Centre, the conduct of the training program, the instructors and participants and, in particular, offers some observations on the problems encountered, the results already apparent, the value of International Training Centres in the Expanded Technical Assistance Program, and the urgent need for further training of this kind. Section II contains a general introduction to the fish-marketing situation in South and East Asia, a detailed description and analysis of the Hong Kong Government Fish Marketing Organization, and a series of chapters dealing with fish-marketing conditions in each of the countries (Burma, Ceylon, India, Indonesia, Japan, Malaya, Pakistan, Philippines, Thailand, and Vietnam) represented at the Centre.

"Fishing Craft Survey," article, Trade News, vol. 8, no. 1, July 1955, pp. 8-10, illus., printed. Department of Fisheries of Canada, Ottawa, Canada. A review of a comprehensive report prepared by the Markets and Economics Service of the Department of Fisheries on the economics of certain types of fishing craft operating on the Atlantic coast. This report covers

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a survey made to investigate the performance of two general types of boats, long liners and draggers, under current cost-price relationships.

Fishing Industry Research Institute, Eighth Annual Report of the Director, April 1, 1954-March 31, 1955, 43 pp., illus., printed. Fishing Industry Research Institute, Cape Town, South Africa. Includes brief accounts of the progress in the Institute's program of fisheries research. Descriptions of experimental methods and techniques are condensed and results are summarized. Attention has been given to the development of improved methods of handling and icing fresh fish, to the improvement of process control in canneries, and to questions of stickwater recovery.

Fisheries Statistics of the Philippines, 1954, by Jose R. Montilla and Crescencio R. Dimen, 75 pp., illus., processed. Department of Agriculture and Natural Resources, Bureau of Fisheries, Manila, Philippines, 1955. This report, the fourth of the series initiated in 1951, is devoted to production by commercial fishing vessels. The tables are subdivided according to gear used (with illustrations), kind of fish caught, monthly production, and fishing grounds. There are also statistics on fish-pond production, imports and exports of fishery products including canned and processed fish. Statistics also cover fishery products such as reptile skins, seaweeds, sharkfins, shells, sponges, trepang, turtle eggs, and turtle shells. The appendices contain information on the fishery districts, the forms used in collecting fishery statistics, and a new feature which is an inventory of fishing gear used in the Philippines, by kind of fisheries, and by kind, quantity, and value for the year 1953. Except for fish production which presents all available data since 1940, most of the information covers a five-year-period (1950-54). A novel feature in this issue is the incorporation of a number of statistical charts that delineate some of the important facts in the data presented.

The Fishing Industries Research Institute, 23 pp., illus., printed in English and Afrikaans. Council for Scientific and Industrial Research, Pretoria, Union of South Africa, 1954.

Fish Saving (A History of Fish Processing from Ancient to Modern Times), by Charles L. Cutting, 385 pp., illus., printed. Leonard Hill Limited, 9 Eden St., N. W. 1, London, England, 1955. The author of this book, who is trained in the field of fisheries technology, gives a very good account of the "methods evolved by man down through the ages for keeping fish in an edible condition." The contents range from the preservation practices of primitive peoples on through the pre-industrial era, the development of the vast fisheries off Newfoundland, the early history of the fish-canning industry, and on down to the present era. Although the book concentrates on the historical aspects of fish preservation as food, the volume contains many references to the role that salting, drying, and smoking of fishery products played in the development

of trade between Europe and the North American colonies. This volume is nontechnical and can be recommended to anyone who wants a background knowledge of a subject for which the material is often scattered and inaccessible. The reference material at the end of each chapter is excellent and besides a general index, is also indexed by species, names, and places.

--H. M. Bearse

Foreign Trade through San Francisco Customs District, 1954, 99 pp., illus., processed. Board of State Harbor Commissioners, Ferry Bldg., San Francisco 6, Calif. This analysis for foreign trade through the San Francisco Customs District was published as a service to world traders. Information in this issue is based on tabulations of more than 40,000 commodity items (including fish and shellfish). Summarized from these are figures on all nonmilitary cargoes exported and imported through San Francisco's Customs District in 1954.

"High-Potency Vitamin A, Oils from Indian Freshwater Fish," by S. Balasundaram, H. R. Cama, P. R. Sundaresan, and T. N. R. Varma, article, *Nature*, vol. 176, no. 4481, September 17, 1955, pp. 554, printed. MacMillan & Co., Ltd., St. Martin's St., London, W. C. 2, England.

The Icelandic Efforts for Fisheries Conservation (Additional Memorandum Submitted to the Council of Europe by the Government of Iceland), 26 pp., illus., printed. Government of Iceland, Reykjavik, Iceland, October 1955. In September 1954 the Government of Iceland submitted a Memorandum to the Council of Europe, entitled "Icelandic Efforts for Fisheries Conservation." In May 1955 the Government of the United Kingdom submitted a Memorandum to the Council of Europe, entitled "The Dispute with Iceland" to answer the contentions of the Government of Iceland. An attempt was made in the latter publication to justify to some extent the landing ban or boycott of Icelandic trawlers which is still in effect in United Kingdom ports. In the present Additional Memorandum the Government of Iceland reviews the problems involved with reference to the United Kingdom Memorandum and in the light of current developments. It discusses the importance of the fisheries to the Icelandic people; the Icelandic fishery limits and the conservation of the fish stocks; the legal position; the economic effect of the conservation measures; and the action taken by the British fishing industry.

The Inexhaustible Sea, by Hawthorne Daniel and Francis Minot, 239 pp., illus., printed. Macdonald and Co., Ltd., London, England, 1955.

La Economía del Mar y sus Relaciones con la Alimentación de la Humanidad (The Resources of the Sea and Their Relationship to the Feeding of Man), by Zaharia Popovici and Victor Angel-escu, Tomo I and Tomo II, Publicaciones de extensión cultural y didáctica no 8, 1056 pp., illus., printed in Spanish. Instituto Nacional de Investigación de las Ciencias Naturales, Buenos Aires, Argentina, 1954. This publication is divided into two volumes, Volume I has two parts: Part I--La Bioeconomía del Mar; and

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Part II--Los Recursos del Mar en la Economía del Hombre. Volume II contains Part III--Problemas de la Economía del Mar y su Vinculación con la Alimentación de la Humanidad.

La Pesca del Camaron en Panama. I. Evaluación de Nuestra Riqueza Comaronera (Shrimp Fishing in Panama. I. Evaluation of Our Shrimp Resource), by M. D. Burkenroad, J. L. Obarrio, and C. A. Mendoza, 8 pp., illus., printed. (Reprinted from Revista de Agricultura, Comercio e Industrias, Ano. XIII, no. 21, February 1955.)

Lobos Marinos, Pinguinos y Guaneras de las Costas del Litoral Marítimo e Islas Adyacentes de la Republica Argentina, by Italo Santiago Carrara, 206 pp., illus., processed, in Spanish. Ministerio de Educación, Universidad Nacional de La Plata, Facultad de Ciencias Veterinarias, La Plata, Argentina, 1952.

Lobster Maximum Size Restrictions, by Robert L. Dow, 8 pp., processed. Maine Department of Sea and Shore Fisheries, Augusta, Me., March 1955.

Marine Laws--Navigation and Safety, 1955 Supplement, by Frederick K. Arzt, 106 pp., printed, \$2. Equity House, Equity Publishing Corp., Oxford, N. H., 1955. This is a supplement to the more comprehensive volume published in 1953 and reviewed in the July 1953 issue of Commercial Fisheries Review. The first supplement appeared in 1954 and was reviewed in the September 1954 issue of Commercial Fisheries Review. This new supplement brings up to date (August 2, 1955) all amendments and new marine laws enacted by Congress affecting the maritime industry. The author has carefully prepared a number of annotations covering court constructions of the Supreme Court of the United States and Subordinate tribunals on the statutes included in the main volume and this supplement. Thus, reference to any section in the supplement will instantly give the user the latest amendments and court constructions to the same section in the main volume. Several new features have been added to enhance the value of this service to its many users. A ready-reference summary of new legislation is included in the color centerfold under the heading "The Congressional Periscope."

Marine Worm Management and Conservation, by Robert L. Dow and Dana E. Wallace, Fisheries Circular no. 16, 11 pp., processed. Maine Department of Sea and Shore Fisheries, Augusta, Me., February 1955.

Maryland Board of Natural Resources, Eleventh Annual Report, 1955, 165 pp., illus., printed. Board of Natural Resources, State Office Bldg., Annapolis, Md. A report for the fiscal year beginning July 1, 1953, and ending June 30, 1954, covering the activities, accomplishments, and recommendations of the several departments represented on the Board, including the Department of Tidewater Fisheries, the Department of Game and Inland Fish, and the Department of Research and Education.

(Massachusetts) Sixth Report of Investigations of the Shellfisheries of Massachusetts, by Harry J. Turner, Jr., Contribution No. 715, 74 pp., illus., printed. Woods Hole Oceanographic Institution, Woods Hole, Mass., 1953. A summary of the investigations of methods of improving the shellfish resources of Massachusetts which were carried out in 1953 by the Woods Hole Oceanographic Institution under contract with the Division of Marine Fisheries, Massachusetts Department of Natural Resources. The following investigations are described: "The Sea Scallop Fishery," by J. Arthur Posgay; "The Edible Crab Fishery of Massachusetts;" "Growth and Survival of Soft Clams in Densely Populated Areas;" "Growth of Molluscs in Tanks;" and "A Review of the Biology of Some Commercial Molluscs of the East Coast of North America."

Meat Yield of Maine Scallops (PECTEN MAGELANICUS), by Frederick T. Baird, Jr., Research Report no. 16, 2 pp., illus., processed. Maine Department of Sea and Shore Fisheries, Augusta, Me., February 1954.

Natural Redistribution of a Quahog Population, by Robert L. Dow and Dana E. Wallace, 1 p., printed. (Reprinted from Science, October 7, 1955, vol. 122, no. 3171, pp. 641-642.) Maine Department of Sea and Shore Fisheries, Augusta, Me.

"New England Pioneers the Fish Stick Industry," by D. H. Cheney, article, Foreign Trade, vol. 104, no. 9, October 29, 1955, pp. 20-21, illus., printed, single copy 20 cents. The Queen's Printer, Government Printing Bureau, Ottawa, Canada. New England has been a leader in the development and production of fish sticks since the beginning of the industry in late 1952, and Canada has been the leading foreign source of the frozen-fish blocks and slabs from which the fish sticks are made, followed by Iceland, Norway, Denmark, and West Germany. The United States production of fish sticks, given by months for 1953-1955, shows how production has climbed steadily. A table which shows United States imports of groundfish fillets during 1954 and 1955 gives a reasonably-accurate picture of how this trade has developed. According to the author, "over 70 million pounds of fish sticks will be produced in the United States this year. Popularity of this three-year old product has boosted demand for frozen-fish blocks and slabs from Canada and this demand should continue."

"New Methods for Handling Frozen Foods in Warehouse Plants," by Theodore H. Allegri, article, Marketing Activities, vol. 18, no. 10, October 1955, pp. 3-7, illus., processed, single copy 15 cents. Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C. (For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.)

"New Weapons against the Lamprey," by Woodrow Jarvis, article, Natural History, vol. LXV, no. 7, September 1955, pp. 364-369, illus., printed, single copy 50 cents. American Museum of Natural History, Central Park West at 79th St., New York 24, N. Y.

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The Northern Islands (Background of Territorial Problems in the Japanese Soviet Negotiations), 28 pp., illus., printed. Public Information Bureau, Ministry of Foreign Affairs, Tokyo, Japan, 1955. Against the background of the talks between Japan and the Soviet Union on the normalization of their relations, the major issues pending between the two countries have become matters of worldwide interest. Among them, of course, is the question of the northern islands. This booklet gives the background facts concerning the Kurile Islands, the Habomais and Shikotan Island, and South Sakhalin; changes brought on by the war; earlier history; negotiations on the Kuriles and Sakhalin; and economic consequences (includes a discussion of the very important role the fisheries play in Japan's economy).

Norwegian Studies on the Bacteriology of Semi-preserved Herrings, by Sverre Hjorth-Hansen, 8 pp., processed. (Reprinted from The Proceedings of the Symposium on Cured and Frozen Fish Technology, 195 pp.) Swedish Institute for Food Preservation Research, Goteborg, Sweden, November 1953.

Nota Sobre un Crustaceo Parasito del Abadejo y Merluza, by Italo Santiago Carrara, 5 pp., illus., processed, in Spanish. Catedra de Fauna Acuatica y Terrestre, Facultad de Ciencias Veterinarias, Universidad Nacional de Eva Peron, 60 y 118, Eva Peron, Argentina, April 1954.

Observaciones Sobre el Estado Actual de las Poblaciones de Pinnipedos de la Argentina, 18 pp., illus., processed, in Spanish. Facultad de C. Veterinarias, Catedra de Fauna Acuatica y Terrestre, 60 y 118, Ciudad Eva Peron, Argentina, 1954.

The Ocean Floor, by Hans Pettersson, 196 pp., illus., printed, \$3. Yale University Press, New Haven, Conn., 1954.

The Octopus, by Olive L. Earle, 64 pp., illus., printed, \$2. Wm. Morrow & Co., Inc., 425 - 4th Ave., New York 16, N. Y. A book for children principally.

"A Possible New Vitamin A Isomer in the Eyes of Crustaceans," by Georg Lambertsen and Olaf R. Braekkan, article, Nature, vol. 176, no. 4481, September 17, 1955, pp. 553-554, printed. Mac Millan & Co., Ltd., St. Martin's St., London, W. C. 2, England.

(FAO) Protein Malnutrition (Proceedings of a Conference in Jamaica (1953) Sponsored Jointly by the Food and Agriculture Organization of the United Nations (F.A.O.), World Health Organization (W.H.O.), and Josiah Macy, Jr. Foundation, New York) edited by J. C. Waterlow, 289 pp., 24 plates, illus., printed. Food and Agriculture Organization of the United Nations, Rome, Italy, 1955.

PSEUDOMONAS SALINARIA, Agente Productor del "Rojo" en los Productos Pesqueros, Salados, by Victor H. Bertullo, 13 pp., illus., printed in Spanish. (Reprinted from Anales de la Facultad de Veterinaria, Tomo VI, No. 2, pp. 39-

50.) Universidad de la Republica, Republica Oriental del Uruguay, Montevideo, Uruguay, 1954.

Quarterly Report on Fisheries Research (September 1953), 9 pp., processed. The Marine Laboratory, University of Miami, Coral Gables, Fla.

Quarterly Report on Fisheries Research (September 1954), 7 pp., processed. The Marine Laboratory, University of Miami, Coral Gables, Fla.

Quantity Recipes for Institutional Food Service, 40 pp., printed. Consumer Service Division, National Canners Association, 1133 20th St., NW., Washington 6, D. C. Contains recipes (including fish and shellfish) which were developed in the National Canners Association's test kitchens and production-tested in quantity-recipe size (servings vary from 48 to 100) in an institutional food-service kitchen. A list of the common container sizes is also presented. The fish recipes included are: clam dip ambassador, codfish, appetizers, sardine canapes, party tuna balls, clam fricassee, crab meat and shrimp gourmet, salmon fondue, salmon loaf, baked shrimp and tuna newburg, oyster stuffing, and fish, noodles and mushrooms.

Recent Development in Fish-freezing Technique and Pending Scientific Problems, by Eirik Heen, 9 pp., processed. (Reprinted from The Proceedings of the Symposium on Cured and Frozen Fish Technology, 195 pp.) Swedish Institute for Food Preservation Research, Goteborg, Sweden, November 1953.

"The Relative Effectiveness of Nylon and Cotton Gill Nets," by F. M. Atton, article The Canadian Fish Culturist, Issue Seventeen, September 1955, pp. 18-26, illus., printed. Department of Fisheries of Canada, Ottawa, Canada. Describes a study in which nylon and cotton nets were fished under similar conditions to compare their relative effectiveness. The available literature dealing with the properties and use of nylon gill nets was examined. The following conclusions were reached: (1) Nylon gill nets were consistently more efficient than cotton gill nets in the capture of fish; (2) The greater efficiency of nylon over cotton gill nets decreased with increasing mesh size; (3) The relative efficiency of nylon to cotton gill nets was determined mainly by the availability of fish; (4) The efficiency of a nylon net may be controlled by choosing the appropriate mesh size, that is, by limiting the availability of fish to the net; (5) Nylon gill nets capture fish of somewhat larger average round weight than those caught by cotton nets of the same mesh size. This is attributed to the elasticity of this synthetic fiber; and (6) The selectivity of nylon nets compared to cotton nets varies with the species and with the availability of the size groups in a population. The main selective action of nylon nets is the capture of a greater proportion of the same group of larger fish which are caught also in cotton nets.

"Report on the United Nations Technical Conference on the Conservation of the living resources of the Sea," article, FAO Fisheries Bulletin,

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

vol. VIII, no. 3, July-September 1955, pp. 117-130, printed in English, French, and Spanish, single copy 30 cents. Food and Agriculture Organization of the United Nations, Rome, Italy. (For sale by International Documents Service, Columbia University Press, New York 27, N. Y.)

Revue des Travaux de L'Institut Scientifique & Technique des Peches Maritimes (Review of the Research by the Maritime Fisheries Scientific and Technical Institute), Tome XVIII, Fascicules 2 a 4, January 1954, 144 pp., illus., printed in French. Institut Scientifique et Technique des Peches Maritimes, 59 Avenue Raymond-Poincare, Paris 16, France.

Seal Hunter, by Per Waage, 160 pp., printed, \$2.50. Coward-McCann Publishing Co., New York, N. Y. A book for the 8 to 12 age group

Seals and Walruses, by Louis Darling, 63 pp., illus., printed, \$2. Wm. Morrow & Co., Inc., 425-4th Ave., New York 16, N. Y. A book for children principally.

The Ship's Medicine Chest and First Aid at Sea, 498 pp., illus., printed, \$3.50. U. S. Public Health Service, Washington, D. C., 1955. (For sale by Government Printing Office, Washington 25, D. C.) A guide prepared primarily for the instruction of those responsible for the administration of emergency treatment at sea. A partial list of the table of contents includes chapters on the structure and functions of the human body, hygiene, general nursing care, first aid, and the classification and treatment of diseases. This publication provides instructions beyond first aid as continued treatment and aftercare may be necessary until the services of a physician become available. The methods and techniques are demonstrated by many illustrations, some of which are in color. This volume is reprinted with additions and changes from a volume originally issued in 1947.

"Some Simple Oceanographical Instruments to Aid in Certain Forms of Commercial Fishing and in Various Problems of Fisheries Research," by J. N. Carruthers, article, FAO Fisheries Bulletin, vol. VIII, no. 3, July-September 1955, pp. 130-140, printed in English, French, and Spanish, Single copy 30 cents. Food and Agriculture Organization of the United Nations, Rome, Italy. (For sale by International Documents Service, Columbia University Press, New York 27, N. Y.) Describes the fishermen's current meter, warp shape indicators applicable to depth and gape studies of pelagic trawls, the fisherman's current cone, and the perspex-cased rolling clinometer.

The South African Pilchard (SARDINOPS OCELLATA) Bird Predators, 1953-4, by D. H. Davies, Division of Fisheries Investigational Report No. 18, 32 pp., illus., printed. (Reprinted from Commerce & Industry, January 1955.) Department of Commerce and Industries, Pretoria, Union of South Africa. This paper is the fourth of a series concerned with the general biology of the South African pilchard Sardinops ocellata (Pappe), and deals with the predation of the pilchard by sea birds.

A Study of the Oyster Biology and Hydrography at Crystal River, Florida, by C. E. Dawson, 24 pp., illus., printed. (Reprinted from the Institute of Marine Science, vol. IV, no. 1, September 1955.) Institute of Marine Science, The University of Texas, Port Aransas, Tex.

Survival of Soft-Shell Clams, MYA ARENARIA, Buried at Various Depths, by John B. Glude, Research Bulletin No. 22, 26 pp., illus., printed. Department of Sea and Shore Fisheries, Vickery-Hill Bldg., Augusta, Me., December 1954. A report giving the results of experiments conducted on the survival of sublegal clams left by commercial digging operations. Commercial diggers leave sublegal clams buried at 1-inch to 9-inch depths in positions ranging from upright to inverted. One or both valves of some of these clams may be broken by the digging operation. Survival of these clams, which must be known to evaluate the effect of the fishery have been determined in five experiments; (1) clams with broken shells have less than one chance in a hundred of surviving; (2) the deeper clams are buried, the poorer are their chance of survival; (3) survival of clams buried in upright and horizontal positions was significantly greater than survival in an inverted position--the difference between survival in upright and horizontal positions was not statistically significant; (4) survival was better in silty-sand than in sand and poorest in silt; (5) average survival in winter was greater than in summer; (6) survival was directly proportional to the size of the clams; and (7) results of these experiments suggest the possibility of increasing production by limiting the frequency of digging and improving digging methods.

"Torskfisket ved Vest-Grønland, 1953-54" (Cod Fishery off West Greenland, 1953/54), article Fiskets Gang; No. 35, September 1, 1955, pp. 447-453, illus., printed in Norwegian with summary in English. Fiskeridirektoren, Postgiro nr. 691 81, Bergen, Norway. Since 1953 special investigations have been carried out concerning the Norwegian fishery for cod in the waters off West Greenland. The investigations have been undertaken to meet the statistical requirements of the International Commission for the Northwest Atlantic Fisheries and are based on records returned by the fishermen on the fishing effort and yield for each day fished. For the long-liners information has been obtained on the number of sets of line, the number of hooks used, and the number of cod caught in each day, while the trawlers have stated the number and duration of each trawl haul and data on the catch in terms of number of boxes. By means of the daily catch notations the total quantity landed from each trip has been broken down by months and fishing grounds. For 1953, information was received for 34 long-liners with a catch of 6,624 metric tons of salted cod. This represented 58.5 percent of the total landings of salted cod from the 55 Norwegian long-liners fishing in West Greenland waters in 1953. The data for 1954 comprised a catch of 6,357 metric tons representing 49.5 percent of the total landings. This year information was received for 29 out of 67 long liners. For the trawlers, data comprised 92.7 percent of the

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total landings in 1953, and 87.6 percent of the total landings of trawl-caught fish in 1954.

The Underwater Naturalist, by Pierre de Latil, 275 pp., illus., printed, \$3.50. Houghton Mifflin Company, Boston, Mass., 1955. An excellent description of marine life along the coast of the Mediterranean Sea near Nice and immediate vicinity, and the observations made by underwater explorers.

Variations in Total Solids of the Soft Clam (MYA ARENARIA), by Donald M. Harriman, Research Bulletin No. 23, 14 pp., illus., printed. Department of Sea and Shore Fisheries, Vickery-Hill Bldg., Augusta, Me., December 1954. Two coastwide surveys in the State of Maine are covered in this report. Meats of soft clams, *Mya arenaria*, were assayed for total solids. Samples were taken to show geographical and seasonal variations. Surface water salinities were compared with total solids of underlying clams. In two years of study, a slight tendency to higher meat scores was observed in the Penobscot region. Variation within any given region exceeded the variation between regions however. Seasonal variations were observed, with a high in the fall and a low in the summer. Seasonal patterns were not identical for different locations, but the one location sampled for

two years was consistent in its cycle of total solids variation.

"Whose are the High Seas?" article, The Economist, vol. CLXXV, no. 5826, April 23, 1955, pp. 267-268, illus., printed, single copy 1s. (14 U. S. cents). The Economist, 22 Ryder St., St. James's, London, S. W. 1, England.

#### TRADE LIST

The Office of Intelligence and Services, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., has published the following trade list. Copies of this list may be obtained by firms in the United States from that office or from Department of Commerce field offices at \$1 a list.

Oils (Animal, Fish and Vegetable) - Importers, Dealers, Producers, Refiners, and Exporters - Japan, 22 pp. (September 1955). Because of abundant aquatic resources and a well-developed fishing industry, Japan produces large quantities of various fish oils (including whale oil), of which roughly 80 percent are exported. The list includes all the known importers, dealers, etc. in marine oils as well as other oils, at the time of publication, but is subject to change without notice.



#### KEEPING LIVE SHRIMP FOR BAIT

Live marine shrimp may be kept successfully in two ways: either by keeping them in submerged slat pens in ocean water or by keeping them in tanks with circulating seawater. The first situation is possible only if there is access to salt or brackish-water areas. The second method is in widespread use by many bait dealers in the coastal areas.

Shrimp may be kept successfully for several weeks if certain precautions are followed. (1) The elimination of waste products appears to be an important consideration and efforts should be made to keep refuse and decaying material from the bottom of the tanks. (2) Circulation of water is important, especially if shrimp are crowded. A flow of one or two cubic feet per minute is recommended. (3) Crowding of shrimp should be guarded against. With no circulation, three shrimp per cubic foot of water is considered optimum density. If circulation of water is available, ten shrimp per cubic foot of water appears to be a safe maximum. These figures apply to shrimp which are to be kept several weeks, and therefore the number of shrimp per cubic foot could be increased for a short period of time. Several dozen shrimp per cubic foot of water can be kept for one or two days provided that there is sufficient circulation. (4) Air supply is not important as long as water circulation is good and if there is no overcrowding. (5) It is best not to allow the temperature to rise above 80° F. (6) It is best to keep the holding tank in subdued light to reduce the growth of algae. (7) Feeding is not advised since uneaten foods tend to decay and contaminate the water. Shrimp survive well without food. (8) Sand in the bottom of the tanks permits the shrimp to bury themselves as is their custom, but it also acts as a trap for decayed material and soon develops a dark color and gives off odors. (9) In order to provide the shrimp with water of a constant salinity, it is advisable to pump from the deeper, cooler portions of the river or bays where the water is least affected by surface heating or rainfall.

--"Sea Secrets,"  
The Marine Laboratory  
University of Miami, Coral Gables, Fla.



## CLAM CHOWDER - A POPULAR WINTER DISH



Something satisfying in the way of a savory dish, particularly during these cold wintery days, is clam chowder. When served piping hot it makes an excellent luncheon or dinner dish.

Take your choice, either the Manhattan Chowder with its tomatoes or the traditional New England style with its seasoned milk--either is delicious and will serve equally as well as soup or as a main dish.

Here are the favorite chowder recipes of the U. S. Fish and Wildlife Service's home economists.

MANHATTAN CLAM CHOWDER

- |  |                              |
|--|------------------------------|
| 1 PINT CLAMS                                 | 1 CUP CLAM LIQUOR & WATER    |
| $\frac{1}{4}$ CUP CHOPPED BACON OR SALT PORK | 1 CUP DICED POTATOES         |
| $\frac{1}{2}$ CUP CHOPPED ONION              | $\frac{1}{4}$ TEASPOON THYME |
| $\frac{1}{2}$ CUP CHOPPED GREEN PEPPER       | $\frac{1}{4}$ TEASPOON SALT  |
| 1 CUP CHOPPED CELERY                         | DASH CAYENNE                 |
|  | 2 CUPS TOMATO JUICE          |

DRAIN CLAMS AND SAVE LIQUOR. CHOP. FRY BACON UNTIL LIGHTLY BROWN. ADD ONION, GREEN PEPPER, AND CELERY; COOK UNTIL TENDER. ADD LIQUOR, POTATOES, SEASONINGS, AND CLAMS. COOK ABOUT 15 MINUTES OR UNTIL POTATOES ARE TENDER. ADD TOMATO JUICE; HEAT. SERVES 6.

NEW ENGLAND CLAM CHOWDER

- |  |                             |
|--|-----------------------------|
| 1 PINT CLAMS                                 | 1 CUP DICED POTATOES        |
| $\frac{1}{4}$ CUP CHOPPED BACON OR SALT PORK | $\frac{1}{2}$ TEASPOON SALT |
| $\frac{1}{4}$ CUP CHOPPED ONION              | DASH PEPPER                 |
| 1 CUP CLAM LIQUOR & WATER                    | 2 CUPS MILK                 |
|  | PARSLEY                     |

DRAIN CLAMS AND SAVE LIQUOR. CHOP. FRY BACON UNTIL LIGHTLY BROWN. ADD ONION AND COOK UNTIL TENDER. ADD LIQUOR, POTATOES, SEASONINGS, AND CLAMS. COOK ABOUT 15 MINUTES OR UNTIL POTATOES ARE TENDER. ADD MILK; HEAT. GARNISH WITH CHOPPED PARSLEY SPRINKLED OVER THE TOP. SERVES 6.

Several species of clams are widely used for food (these commercially important species are but a few of the hundreds of species known). The market varieties of the East Coast are different from those of the West.

On the Atlantic coast, the marketed species are the hard clam, the soft clam, and the surf clam. The hard clam, or hard-shell clam, is commonly called quahog in New England, where "clam" generally means the soft-shell variety. In the Middle Atlantic States and southward, "clam" is the usual name for the hard clam.

Littlenecks and cherrystones are dealers' names for the smaller-size hard clams, generally served raw on the half shell. The larger sizes of hard clams are called chowders and are used mainly for chowders and soups. The larger sizes of soft clams are known as in-shells, and the smaller sizes as steamers.

Copies of How to Cook Clams, Test Kitchen Series No. 8, are available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 20 cents each.