



Recent publications of interest to the commercial fishing industry are listed below.

## 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.  
 SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.  
 SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number	Title
CFS-931	- Mass. Landings, August 1953, 8 p.
CFS-935	- Maine Landings, September 1953, 5 p.
SL - 17	- Wholesale Dealers in Fishery Products, Alabama (Revised), 4 p.

Number	Title
Sep. No. 362	- Freezing Fish at Sea--New England; Part 7 - Pictorial Story of Operations at Sea and Ashore.

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

Gulf States Production of Fishery Products for Selected Areas, 1952, by S. C. Denham, 40 p., processed, June 1953. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 314 Custom House, 423 Canal St., New Orleans 16, La.) Part I of this report discusses the trends and conditions in the Gulf Coast fisheries for 1952 and Part II consists of statistical tables showing the landings of fish and shellfish by areas. In Part I the author discusses the shrimp fishery (landings, composition of catch, factors affecting production, ex-vessel prices, utilization, cold-storage holdings, and canned pack); oyster production and canned pack; blue crab landings; fish landings; imports; and rail shipments. Part II contains statistical tables on total landings by areas and species by months; by individual area and species by months; crab meat production by areas and months; fishery imports at New Orleans and Morgan City, La., and at Port Isabel and Brownsville, Tex.; monthly LCL express shipments from New Orleans by months and by destination; weekly canned oyster and shrimp packs; and a summary table of Gulf shrimp landings for selected areas. Tables showing the monthly wholesale price range of fishery products sold on the New Orleans French Market, fishery products market classifications in the Gulf area, and the monthly fishery production index for selected Gulf States areas are also included. These are the areas covered by the report: Apalachicola, Fla.; Mobile and Bayou LaBatre, Ala.; Pascagoula and Biloxi, Miss.; New Orleans and Lower Mississippi River, Golden Meadow, Houma, Chauvin, Dulac, Morgan City, Berwick, and Patterson, La.; Galveston, Freeport, Port Lavaca, Palacios, Aransas Pass, Rockport, Port Isabel, and Brownsville, Tex.

Landings and Receipts of Fishery Products at Seattle--1952, by Charles M. Reardon, 30 p., processed, May 1953. (Available free from Market News Service, U. S. Fish and Wildlife Service, 421 Bell St. Terminal, Seattle 1, Wash.) The Pacific Northwest fisheries trends and their effect upon Seattle fishery products receipts for 1952 are discussed in the first part of this report. Discussed by the author are the factors affecting the fisheries; the sources of supply for the fresh and frozen fishery products receipts at Seattle; the halibut, tuna, long-line, and otter-trawl fisheries; shellfish receipts; and receipts of fish livers, liver oils, and other miscellaneous fishery products and byproducts. The tables present fishery landings and wholesale receipts (including approximate values) at Seattle for 1952 by species, by months, and by points of origin; monthly index of receipts of certain fishery products at Seattle; carload shipments of fishery products from Seattle by months; and names, classifications, and approximate standards for fresh and frozen fishery products sold on the Seattle market.

Production of Fishery Products in Selected Areas of Virginia, Maryland, and North Carolina (as reported to Hampton Fishery Market News Office), by Lester A. Keilman, 30 p., processed, November 1953. (Available free from the Market News Service, U. S. Fish and Wildlife Service, P. O. Box 447, Hampton, Va.) An analysis of the production of fish and shellfish in selected areas of Virginia, Maryland, and North Carolina during 1952 is presented in the first part of this report. The author discusses landings in the areas covered, production of principal species, the croaker fishery, the shad

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fishery, and shellfish production. Information on the menhaden fishery is also presented--includes receipts reported by Virginia and North Carolina fish meal and oil plants by months for 1952 and 1951. Statistical tables make up the second part of the report--show production of fish and shellfish species for each area by months, shrimp landings in selected North Carolina ports by months, and total production by species for all areas covered. The areas covered in this report include: Atlantic, Beaufort, and Morehead City, N. C.; Norfolk, Portsmouth, Messick, Poquoson, Seaford, Yorktown, Newport News, Hampton, Lancaster County, Cape Charles, Oyster, Willis Wharf, and Wachapreague, Va.; Ocean City, Cambridge, and Crisfield, Md. In addition, shrimp landings only are reported for Englehard, Pamlico County, Atlantic, and Southport, N. C.

Receipts of Fresh and Frozen Fishery Products at Chicago - 1952, by G. A. Albano, 76 p., processed, November 1953. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 200 N. Jefferson St., Chicago 6, Ill.) This report presents (1) an analysis of the

marketing trends for fresh and frozen fishery products and statistical tables on the receipts of fresh and frozen fish and shellfish at Chicago during 1952. Statistics on arrivals of fishery products at Chicago are presented by species and by states and provinces of origin; states and provinces by species; species by months; states and provinces by months; totals by species; and totals by states and provinces. A table shows the monthly range of wholesale prices of some of the leading varieties of fresh and frozen fishery products handled on the Chicago market. All arrivals are tabulated by method of transportation (truck, express, and freight). In the analysis of the marketing trends for fresh and frozen fishery products at Chicago, the author discusses the sources of the receipts, methods of transportation, months of greatest receipts, lake trout and white fish receipts, U. S. imports of fresh and frozen fish from Canada, U. S. imports of frozen fillets from all countries, and cold storage inventories. Also included is a table giving the names, classifications, and approximate weights of certain fishery products sold in the Chicago wholesale market.

## MISCELLANEOUS PUBLICATIONS

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

Algal Culture from Laboratory to Pilot Plant, edited by John S. Burlew, Carnegie Institution of Washington, Publication 600, 366 p., illus., printed, \$1.25 paper bound. Carnegie Institution of Washington, 1530 P Street NW., Washington 5, D. C., 1953.

This recently released monograph is a progress report of the developments in this new field of algal culture, including the investigations sponsored by the Carnegie Institution and parallel studies in other countries. It has as its purpose the stimulation of continuing research leading ultimately to the application of large-scale algal culture for the supplementation of existing sources of food, thereby easing the threat of malnutrition and famine in densely populated regions having only limited fertile land resources.

Part I is a summary of the current status of information on algae with respect to their general characteristics, efficiency for utilization of light energy, potential yield and growing space requirements, optimum environmental conditions for growth, the engineering aspects of large-scale production, evaluation studies as a source of human and animal food or as an industrial raw material, and details essential for the next research stage--a demonstration plant for large-scale algae production.

Part II is a series of six chapters dealing with the general subject "Conditions for Growth of Algae." Among the phases reviewed are the biology of algae, the inorganic nutrition of algae, large- and small-scale culture experiments on the efficiency of light conversion, adaptation of

growth techniques to use of full sunlight, and effects of diurnally intermittent illumination.

Part III is made up of eight reports of research conducted both here and in foreign countries on the growth of algae in mass cultures. Among the experimental techniques and equipment described for mass culture are: the large bottles; rocking tray; plastic and glass tubing. Growth-conditioning factors reported on include: carbon dioxide concentration; cultural medium, night temperature and aeration; day and night temperatures with full sunlight and with partial shading; and turbulence. Based on these experiments recommendations are made for: the most suitable strain of algae to use; the type of culture container; optimum temperature; turbulence; and carbon dioxide, fixed nitrogen and iron content in the medium. Some of the problems encountered in non-sterile culture in the greenhouse and in open air are described for experiments conducted in the Ruhr. The contamination effects of foreign algae and protozoa were serious handicaps to this type of culture, but the thought is expressed that further investigations may remove some of the disadvantages of this cultural technique.

Fogg and Collyer report on studies that show a good correlation between the species of algae and the ability to accumulate lipide, but that environmental conditions of growth are also important factors.

The interesting experimental studies at the Maracaibo Lake project on both the cultivation of algae and the administration of the harvested product to leprosy patients are described briefly.

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Japanese and Israel research on the same general factors of algal culture is reported in two brief statements.

Two reports of pilot-plant scale studies of *Chlorella* culture are presented as Part IV. The study of Arthur D. Little, Inc., is described in considerable detail. Polyethylene tubes were used as the culture containers. Centrifugal pumps served to circulate the medium through the tubes, cooled by cheesecloth covers sprayed with water, and with the carbon dioxide fed into the system from a storage tank. Nutritive elements required in minute quantities were added directly to the culture. Yields of algae are given for various operating conditions. Several methods for the preparation of the harvested algae for further use were investigated including: freezing; drying by spray method, lyophilization and solvent extraction. Detailed conclusions and recommendations on the variables studied are given.

The report of the Japanese studies using a concrete trough, covered with a polyethylene sheet, is very brief and is a preliminary report only.

Possible uses for algae is the theme of Part V. The first chapter is a detailed report of the composition of the fresh-water algae, with principal emphasis on protein, carbohydrate, and lipide content and including as minor components the minerals, sterols, pigments, and vitamins.

Chapter 2 is a summarization of the present state of our knowledge on the nutritional value of these algae. Most of the data available is encouraging although based largely on rat and chick-feeding tests. Toxicity, non-acceptability, and other adverse reactions have been established as being nonexistent for *Chlorella*. Most of the evidence for use as human food is inconclusive because the products tasted are not necessarily representative of those that could be prepared and developed once the fundamentals of cultivation are established and products are sought suitable for direct human nutritive purposes.

A very brief evaluation of the suitability of algae for industrial raw materials is included as the next chapter in Part V. Each of the major and minor constituents is given a preliminary evaluation but further study is said to be necessary to establish the true value of this type of material as an industrial raw material.

The last chapter is a preliminary report of the sterol content of algae. Experimental lots of several algae, grown at the University of Maryland, were analyzed for principal constituents, such as cortisone precursors. The cultural techniques used and that for the isolation of the sterols are included.

Some two hundred and ninety-seven references are included in the selected bibliography of mass culture of *Chlorella* and related subjects.

A detailed index of all principal subject and author references is an essential part of the monograph.

The report is a very comprehensive and well-documented presentation of the present status of our knowledge on the pertinent phases of algal culture. Interested persons will find it very complete, authoritative, and helpful in connection with further study of this field of research.

--Charles Butler

(Canada--British Columbia) Prospects for the 1953-54 Herring Fishing Season, by J. C. Stevenson, Circular No. 29, October 3, 1953, 6 p. with map, processed. Pacific Biological Station, Fisheries Research Board of Canada, Nanaimo, B.C. This is the ninth in an annual series of circulars dealing with the prospects for the British Columbia herring fishery. Various studies of the adult herring populations form the basis of these annual predictions of the success of fishing. The studies provide information on (1) the relative abundance of the different age groups in the fishing and spawning runs, (2) the size of the catch and the fishing effort expended, and (3) the relative size of the part of the population which escaped the fishery and spawned. Predictions are given by area.

(Canada) Fisheries Statistics of Canada, 1951, (New Brunswick), 8 p., printed, French and English, 25 Canadian cents. Department of Trade and Commerce, Dominion Bureau of Statistics, Ottawa, Canada. Consists of tables giving the production and landed and marketed values of the principal species of fish and shellfish landed in New Brunswick in 1949-51; quantity and value of manufactured fishery products for 1950-51; vessels used in the sea fisheries; capital equipment in the primary fisheries operations; and the number of persons engaged in the fisheries.

Comments on the Nomenclature of Canned Fish (Clupeoids and Scombers), by Ed. le Danois, Scientific and Technical Surveys No. 17, 25 p., printed. The British Food Manufacturing Industries Research Association, Randalls Road, Leatherhead, Surrey, England, November 1951. Reviews the species of two groups of fish, the Clupeoids and Scombers. It gives the characteristics of each species and the common names by which it is known in various countries. A suggested international nomenclature for the Clupeoids and Scombers is included.

Directory of Refrigerated Storage Warehouses in the United States, 93 p., processed. Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C., June 1953. Gives the names, addresses, and type of operation (including storage of fish) of refrigerated storage warehouses in the United States. This directory provides a means of extending recognition to warehousemen who have year after year contributed their time and money toward making possible the monthly "Cold Storage Reports" and allied reports on the refrigerated warehousing industry, and makes readily available to processors and food handlers information as to what storage facilities are available in localities where space is needed for their products.

Effect of Trade Agreement Concessions on United States Tariff Levels Based on Imports in 1952,

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76 p., processed, free. U. S. Tariff Commission, Washington 25, D. C., September 1953. This report considers the extent of tariff-rate concessions made by trade agreements and their effects on the average ad-valorem equivalents of the duties based on import data for 1952. It compares the rates in effect before any trade agreement, and the concessions in effect on January 1, 1945, and on January 1, 1953 (January 1, 1945, is significant because present trade agreements legislation provides that rates of duty in effect on that date may be increased or reduced by not more than 50 percent). Like the corresponding analyses in earlier Tariff Commission reports (October 1951), an attempt is made to indicate the proportion of dutiable imports into the United States that has been covered by concessions involving duty reductions or bindings of pre-existing rates, and the extent to which average rates of duty have been reduced by trade agreements. The report shows in twelve tables the average ad-valorem equivalents and the value of trade on which based, broken down by tariff schedule groups.

Of the fishery product imports in 1952, the report shows 78.4 percent of the total dutiable imports were subject to reduced rates of duty; 14.6 percent were bound at preagreement rates; and 7 percent subject to no concession.

The average ad-valorem equivalent of rates of duty in effect on fishery products before any agreement was 13.3 percent; on January 1, 1945, it was 11 percent; and on January 1, 1953, only 8.4 percent. Fishery products were among the lowest in average ad-valorem equivalent prior to trade agreement concessions. Reductions from preagreement rates were equivalent to 37 percent, from rates in effect January 1, 1945, 24 percent. Fishery products on which duty has been reduced showed an ad-valorem equivalent of 6.1 percent subject to rates in effect on January 1, 1953, representing a decline of 51 percent from preagreement rates and 36 percent from January 1, 1945. Preagreement rates bound against increase showed an ad-valorem equivalent of 12.4 percent; and rates on which no concession had been granted in trade agreements, 25.8 percent.

Concessions made in all trade agreements apply to United States import articles which account for 93.4 percent of the total dutiable imports in 1952 (including the group representing 4 percent, on which preagreement rates of duty were bound against increase). The average ad-valorem equivalent of the duties on total dutiable imports (based on 1952 import data) before any trade agreements were in effect was 24.4 percent. The average at rates in effect January 1, 1945, was 17.9 percent. As of January 1, 1953, it was 12.2 percent.

The average ad-valorem equivalent declined 50 percent from the rates in effect before any trade agreements were made. On commodities whose rates of duty have actually been reduced, the reduction is equivalent to 54 percent. The corresponding reductions in average ad-valorem equivalent from January 1, 1945, to date were 32 and 36 percent.

--A. M. Sandberg

(Formosa) Review on the Trawling Ground of South China Sea (1. Region Between Penhu and Hainan Island), by F. H. Liu, Report No. 1, 49 p., illus., printed, in Chinese and summary in English. Research Laboratory, Taiwan Fishery Rehabilitation Administration, Taiwan, October 1952. A brief summary of the fishing conditions of the region between Penhu and the Hainan Islands. Also describes the kinds of fish, fishing grounds, distribution of important fishes, body weight of the fishes caught, and oceanographical and meteorological conditions.

Fourth Annual Report on Exchange Restrictions, 1953, 351 p., printed. International Monetary Fund, Washington, D. C. Describes the work of the Fund in the field of restrictions in 1952 and early 1953, which was substantially directed to annual consultations with members maintaining any exchange restrictions inconsistent with the Fund Agreement. Part I of the report gives results of the 1952 consultations and considers the program for 1953. Part II summarizes by countries the factual situation developed during the consultations.

Almost all countries consulting held that the restrictions which they maintained were necessary for balance-of-payments purposes. Most countries reported that there was need to restrain over-all import demand, and frequently to discriminate in the application of their restrictions. Some countries indicated that, while using restrictions to cope with balance-of-payments difficulties, they also tried to apply them in such a manner as to serve other subsidiary purposes. For example, a number of countries with economic development programs argued that since they could not finance imports of all types, they allocated available exchange in such a way as to make sure that the needs of the programs were met. Some consulting countries stated that their restrictions served other than balance-of-payments purposes. Thus, certain specific restrictions on imports were stated to be used to protect domestic agriculture and infant industries. For some countries with multiple-exchange rates, their representatives indicated that these practices were substitutes for taxes, subsidies, or tariffs.

Export drives were among the direct efforts reported as undertaken to improve the balance-of-payments positions. These were facilitated by efforts to improve marketing techniques in the dollar markets, and to lower domestic costs and reduce export prices. Many countries reported continuing efforts to expand production so they would be able to increase exports and to reduce their dependence on imports, thus expecting to make possible substantial relaxation of restrictions. A number of countries stressed that efforts to expand export markets were significantly affected by economic conditions and restrictions in other countries.

The individual country summaries give the position in each country as of the end of 1952 with a brief statement of the major changes initiated during that year, or early in 1953. These country reports describe the restrictive system developments in their use, and how they work.

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As of February 1953, of the 45 countries member to the Fund, consultations with 35 had been completed. Various stages in the procedure had been reached with the 10 others.

--A. M. Sandberg

"Growth and Mortality of Oysters in Louisiana," by H. Malcolm Owen, article (also Contribution No. 8 from the Louisiana Department of Wild Life and Fisheries, New Orleans, La.), Bulletin of Marine Science of the Gulf and Caribbean, vol. 3, no. 1, June 1953, pp. 44-54, illus., printed. Marine Laboratory, University of Miami, Coral Gables (University Branch) 46, Florida. Experimental plantings of seed oysters (Crassostrea virginica) were made at five locations in the oyster-producing area of southeastern Louisiana. The results which were obtained showed that the yield of planted oysters is determined by the interaction between the growth factors and the mortality factors of the environment. It was found that undue mortalities occurred in certain areas of normally rapid growth in 1947-48.

(India) Investment in India--Conditions and Outlook for United States Investors, 171 p., illus., printed, 70 cents. Office of International Trade, U. S. Department of Commerce, Washington, D. C. (For sale by Superintendent of Documents, Washington 25, D. C.) This is one in a series of handbooks on foreign countries designed to bring together in convenient form basic information useful to potential investors. Includes a chapter on tariffs, trade controls, and exchange controls. Discusses the climate for foreign investment, the people and government, the economy, industrial policy, taxation, finance, basic resources, transportation and communication, and labor. Presents data on foreign trade, legislation and rules relating to industry, companies located in India with U. S. business relationships, and other phases of India's economy.

(International Tin Study Group) Supplement 1953 to The Statistical Year Book, 1952 (Tin, Tinplate, Canning), 91 p., printed, 12s. 6d. (US\$1.75); free to purchasers of The Statistical Year Book, 1952. International Tin Study Group, 7 Carel van Bylandtlaan, The Hague, Holland, 1953. This supplement brings up to date for almost every country of importance the statistical position of the tin, tinplate, tin alloy, and canning industries. Fish and shellfish products are listed as a group in many of the tables giving canning statistics.

Into the Freezer--and Out, by Donald K. Tressler, C. F. Evers and Barbara H. Evers, 243 p., illus., printed, \$3.75. The Avi Publishing Co., Inc., New York, N. Y., 1953. This second edition of Into the Freezer--and Out is designed to furnish authoritative information on all aspects of freezing foods in the home. Included are pointers on the selection of the proper type of freezer; the supplementation of the home freezer with frozen locker-storage space; the types and amounts of food to freeze; the step-by-step instructions for selection, preparation, packaging and freezing of the food; and the recipes for converting the frozen foods into delightfully different dishes for the family.

Suggestions for the selection, preparation, freezing and serving of fish and shellfish are included as part of the appropriate sections in the book. In one chapter, the methods recommended for the preservation of the sportsman's haul of fish and game are given. Procedures for the filleting or steaking of fish are supplemented with photos.

Miscellaneous other subjects included are a discussion of the nutritional value of the principal types of food, a planting and harvesting schedule for fruits and vegetables, and hints on methods for the advance preparation of pre-cooked frozen meals to use on special occasions or for "quickie" entertainment of unexpected guests.

--Charles Butler

Man's Foods, (Nutrition and Environments in Food Gathering Times and Food Producing Times), by L. B. Jensen, 288 p., printed, \$4.50. Garrard Press, 119-123 West Park Ave., Champaign, Ill., 1953. This is the story of man's quest for food through the ages, of the development of food-gathering and producing techniques that set man apart from other animals, and how man himself evolved because of, and in spite of, the foods he ate. The author states that the book was written "with a view of indicating a vast and still relatively unexplored field for those interested in the prehistory and history of many foods that have affected man's organic and social evolution." Food technologists, nutritionists, home economists, dieticians, physicians, veterinarians, biochemists, microbiologists, and students of fisheries and agriculture will be interested in this book. The history of foods is developed by the author under three major headings: (1) Food Gathering Times, covering a period of some 400,000 years; (2) Food Producing Times, which began about 8,000 years ago; and (3) Nutrition and its role in biological and social evolution. The text is supported by more than 650 references to authoritative sources. However, even the layman with an interest in science and history will find this book fascinating reading. Some of the nutritional influences on man's development are traced by the author. Interesting quotes are to be found throughout the book. Data from the many fields that contribute to the very interesting subject of food and man's physical and social growth have been drawn upon by the author. The information comes from the anthropologist, the explorer, the chemist, the physiologist, and the nutritionist. Nutritionists may not agree with the author in some instances, but it is a thought-provoking book. There is a chapter on domesticated animals and protein foods, which includes fish and shellfish as food. Other chapters deal with the spread of food production to Europe, Social Aspects of Nutrition and Bodily Changes; Climatic Stress and Nutrition; and the final chapter deals with Nutrition and Man's Welfare. There are a number of references to the use of fish and shellfish as food throughout the book, although because of the importance of fish and shellfish in the diet of certain countries today and in the past these data should have been expanded somewhat.

--J. Pileggi

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- Newfoundland Fisheries Development Committee Report, 137 p. and maps, printed, C\$1.00. Published by authority of Canadian Minister of Fisheries and Newfoundland Minister of Fisheries and Co-operatives, St. John's, Newfoundland, 1953. (For sale by Queen's Printer, Ottawa, Canada; or St. John's Newfoundland.) A complete report of the Newfoundland Fisheries Development Committee is contained in this publication. Part I (The Problem and Its Setting) presents the number and location of fishermen and alternative occupations; a description of the fishing enterprise--evolution, organization, equipment, production, costs, and returns; describes the Labrador fishery; analyzes family income, expenditure, and standards of living. Part II (The Fishery Resources of Newfoundland) describes the fisheries for cod, haddock, other groundfish, other species of fish and shellfish, whales, and seals. Part III (The Market for Fishery Products) discusses the market for salt cod, frozen fillets, cured herring, marine oils, and other fishery products and byproducts. Part IV (Fish Production and Distribution) presents the fishermen's needs; the requirements of management, processing and marketing of salt cod, frozen groundfish fillets, herring products, chilled salmon, and live lobsters; and meals and oils. Part V presents a development program for Newfoundland's fisheries and touches upon exploration, demonstration, and scientific research; catching of fish; curing and processing of fish (with particular reference to utilization of groundfish resources); production of heavy-salted cod; housing for fishing communities; transportation; markets and market research; division of responsibility; and financing the program. The report also has four appendixes, one of which lists the papers embodying the results of the various surveys and studies undertaken by the Committee's special staff and those submitted by others at the Committee's request.
- "Norwegian Minke Whaling," by Gordon C. Pike, article, Trade News, June 1953, vol. 5, no. 12, pp. 5-6, illus., processed. Department of Fisheries, Ottawa, Canada. Describes the development of the fishery for the small minke whale (Balaenoptera acutorostrata) which has been hunted in Norwegian waters for several hundred years.
- "Observations on the Daily Movements of Fishes," by Arthur D. Hasler and James R. Villemonte, article, Science, September 18, 1953, vol. 118, no. 3064, pp. 321-22, illus., printed. American Association for the Advancement of Science, 1515 Massachusetts Ave. N.W., Washington 5, D. C. Describes a study of the movement of schools of perch (Perca flavescens) at sunrise from 18- to 30-ft. depths to 25- to 35-ft. depths (where they hover in the daylight hours) adjacent to Second Point in Lake Mendota, Wisconsin. These observations were made with an echosounding unit in a 40-ft. Navy launch that records sound pulses returning from the bottom of the lake and from intervening schools of fish. It was seen on the oscilloscope screen that the schools of perch moved onto the Second Point shelf high over the bottom during their pre-sundown, inshore movement and reached their greatest concentration during the hour before

sunset. They settled lower as twilight approached and their echo trace blended finally into the bottom echo. No further evidence of their presence was discernible on the instruments after darkness set in. At sunrise the movement is reversed.

- Philippine Fisheries, 169 p., illus., printed. Bureau of Fisheries, Manila, Philippine Islands, 1952. This manual was prepared to record the holding in the Philippines of the fourth meeting of the Indo-Pacific Fisheries Council from October 23 to November 7, 1952. It contains the following papers: "Geographic Setting of Philippine Fisheries," by Alfonso R. Sebastian; "Oceanographic Background of Philippine Fisheries," by Teodoro G. Megia; "Administration and Training in Fisheries," by Andres M. Mane; "Commercial Aquatic Fauna of the Philippines--I. Invertebrates," by Artemio M. Sarenas; "Commercial Aquatic Fauna of the Philippines--II. Vertebrates," by Inocencio A. Ronquillo; "Production Organization in the Philippine Fishing Industry," by Bayani Ongchangco; "Fishing Gear Commonly Used in Philippine Fishing," by Santos B. Rasalan; "The Principal Marine Fisheries," by Porfirio R. Manacop; "Inland Fisheries of the Philippines," by Pedro A. Acosta; "Cultivation of Fish in Brackish and Estuarine Waters in the Philippines," by Andres M. Mane, Domiciano K. Villaluz, and Herminio R. Rabanal; "Marine Products of Minor Commercial Importance," Jose R. Montilla and Guillermo J. Blanco; "Methods of Preservation and Processing of Fish," by Claro Martin and Augusto D. Manalo; "Marketing Practices in the Philippine Fishing Industry," by Bayani Ongchangco; "Basic Features of the Philippine Fishery Laws," by Jose G. Sanchez; and "Some Important Problems of the Philippine Fisheries Industry," by D. V. Villadolid and Daniel M. Bunag.
- "The Problem of Slime in the Sanitation of Fish Plants," by C. H. Castell, article (also Atlantic Fisheries Experimental Station Note No. 130), Progress Reports of the Atlantic Coast Stations, No. 56, July 1953, pp. 5-9, printed, in English and summary in French. Fisheries Research Board of Canada, Atlantic Fisheries Experimental Station, Halifax, N. S. This article gives some general ideas about the problems resulting from the presence of slime on fish in relation to the sanitation of fish plants.
- "Quantitative Measurement of the Effect on Oysters of Disease Caused by Dermocystidium marinum," by Sammy Ray, J. G. Mackin, and James L. Boswell, article (also Contribution No. 23 from the Department of Oceanography of the Agricultural and Mechanical College of Texas), Bulletin of Marine Science of the Gulf and Caribbean, vol. 3, no. 1, June 1953, pp. 6-33, illus., printed. Marine Laboratory, University of Miami, Coral Gables (University Branch) 46, Florida. Measurement of effect of the Dermocystidium mycosis in terms of weight of oyster meats has been accomplished by analysis of measurements of meat weights and shell capacity of 508 oysters over a period extending from April 1952 to August 1952. The 508 oysters included 198 heavily infected with D. marinum, 83 moderately infected,

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and 227 either lightly infected or negative. Weights of meats of heavily infected oysters and moderately infected oysters are compared, per unit of shell capacity, with the negative and lightly infected group. The data show that the average mean of meat weights of heavily infected oysters was about 33 percent less than that of the controls and that the moderately infected oysters were intermediate in loss of weight. Mathematical analyses of the data support the conclusion that disease plays a major role in reduction of meat weights. Analysis of the data also shows that reduction of weights is not only a matter of disease but of season, summer losses accruing from disease being significantly greater than those of early spring months. Experimental studies which eliminate factors of nutrition point to lysis of tissues as one of the major processes resulting in loss of weight. In these studies reduction of bits of excised gill tissues which were heavily infected with the fungus is compared with that of normal excised tissues when bacterial and other contaminants are excluded. Statistical methods and procedures are fully described.

Reduction of Bacterial Contamination on Fillets by Washing the Round Fish and by the Use of Mechanical Skinners, by C. H. Castell, article (also Atlantic Fisheries Experimental Station Note No. 131), Progress Reports of the Atlantic Coast Stations, No. 56, July 1953, pp. 10-14, printed, in English and summary in French. Fisheries Research Board of Canada, Atlantic Fisheries Experimental Station, Halifax, N. S. This report deals with a series of tests which were made to find out exactly what benefit would result if the slime was removed from the fish before filleting them. The results showed that washing fish before filleting reduces the bacterial count on the fillets from 80 to 99 percent or more and will add from one to six days to the keeping time of the fillets, stored at 32° F. to 33° F. Almost the same result can be obtained by using a machine skinner that cuts down the gross contamination that occurs when fish are skinned by hand.

The Relationship of High Temperatures and Low Rainfall to Oyster Production in Louisiana, by H. Malcolm Owen, article (also Contribution No. 7 from the Louisiana Department of Wild Life and Fisheries, New Orleans, La.), Bulletin of Marine Science of the Gulf and Caribbean, vol. 3, no. 1, June 1953, pp. 34-43, illus., printed. Marine Laboratory, University of Miami, Coral Gables (University Branch) 46, Florida. The oyster (*Crassostrea virginica*) production (1932-1950) of five parishes of south-east Louisiana were compared with the climatological environmental factors of temperature and rainfall. It was found that when the air temperature was 27.8° C. (81.2° F.) or over and the rainfall was 7.0 cm. (2 $\frac{1}{4}$  inches) or under for prolonged periods during the preceding summer, there was a significant decrease in the production of oysters the following season. Conversely, it was found that production increased if preceded by a relatively cool-wet summer. From other experimental data which positively correlate to the studies as reported in this paper, it was concluded that the mortalities of oysters

occurred during adverse environmental conditions and that it was the mortality rather than the failure to grow that resulted in the decrease of production.

The Sea-Hunters, by Edouard A. Stackpole, 510 pp., illustrated, printed, \$7.50. J. B. Lippincott Company, Philadelphia, 1953. For those who are interested in the story of American whaling, this volume contains a wealth of well-documented material on the historical, geographical, and economic phases. For those who like to read of exciting adventure it offers numerous chapters, especially in the latter half of the book, which are as exciting and interesting as fiction. The first parts of the volume describe the initiation of American whaling in colonial New England and its struggles to survive. Part Four deals with the seldom-discussed whaleman-sealer who sought whales on the high seas and seals and sea elephants ashore. Part Five, almost half the volume, is devoted to the whaleman as a pathfinder and explorer, describing in fascinating detail his voyages, largely in the uncharted Pacific.

--A. W. Anderson

Some Conservation Problems of the Great Lakes, by Harlow B. Mills, Biological Notes No. 31, 14 p., illus., processed. Natural History Survey Division, Urbana, Illinois, October 1953. Discusses the aquatic environment in the Great Lakes, the Great Lakes fishery resource, changes in the physical environment, changes in the fish population, and shore-line problems.

So Easy Recipes and So Good, Too, 50 p., illus., printed. Home Economics Division, National Canners Association, Washington 6, D. C. Contains 121 tested recipes for preparing canned foods--selected because they are good tasting, practical, and dependable for preparation in the home. Some seafood recipes are included.

The State of Food and Agriculture 1953 (Part I - Review and Outlook), 129 p., illus., printed, US\$1.00 or 5s. Food and Agriculture Organization of the United Nations, Rome, Italy, August 1953. (For sale in U. S.: Columbia University Press, International Documents Service, New York 27, N. Y.) The annual review of the world food and agricultural situation (including fisheries) for 1952/53 has been divided into two parts. The first part, presented in this report, deals with the progress and problems of agriculture, fisheries, and forestry for 1952/53 and the immediate outlook for the following year. The second part--which is a review of governments' longer-term plans and progress of agricultural production, and an attempt to evaluate their probable effect on world agricultural production and trade and on levels of food consumption during the next four or five years--will be published later. These two reports form the basis of a principal part of the discussions during the biennial meeting of FAO's Conference at Rome which began November 23, 1953.

Besides a foreword by the Director-General of FAO, Part I consists of four chapters. The first chapter is a summary by regions and by

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commodities of the balance of the report. A world review and outlook is included in chapter II--agricultural production, food consumption and nutrition, international trade in agricultural products, the changing pattern of world trade in foodstuffs, the world economic situation, prices of agricultural products, farm income and investment, and the economic outlook for 1953 and 1954 are covered. Chapter III consists of a regional review and outlook by continents. Small sections on fisheries are included in these first three chapters. A review and outlook by commodities makes up chapter IV, and there is a fairly comprehensive section on fisheries products which discusses catches and landings; fresh, frozen, cured, and canned fishery products; and fish meal and oils.

The Striped Bass, ROCCUS SAXATILIS, Bulletin of The Bingham Oceanographic Collection, vol. XIV, article 1, 177 p., illus., printed, \$3.00. The Bingham Oceanographic Laboratory, Yale University, New Haven, Conn., December 1952. Includes the following papers: "The Life History of the Striped Bass, *Roccus saxatilis* (Walbaum)," by E. C. Raney; "Spawning Grounds of the Striped Bass or Rock, *Roccus saxatilis* (Walbaum), in Virginia," by E. F. Tresselt; "Variations in the Feeding Habits of the Striped Bass, *Roccus saxatilis* (Walbaum), in Chesapeake Bay," by E. H. Hollis; and "Studies of the Striped Bass, *Roccus saxatilis* (Walbaum), with Special Reference to the Chesapeake Bay Region during 1936-38," by V. D. Vladykov and D. H. Wallace.

(Sweden) Yrkesfiskarnas Inkomster Och Utgifter M. M. Ar 1951 (Income and Expenditures of Professional fishermen in 1951), by Otto Zetterberg and Tage Zander, 18 p., printed in Swedish. (Reprint from *Jordbruksekonomiska Meddelanden*, July 1953, pp. 320-37). Isaac Marcus Boktr.-Aktiebolag, Stockholm, Sweden. Describes an investigation based on the income tax returns of 1,860 professional fishermen, representing 13.6 percent of Sweden's professional fishermen in 1938. In 1949 there was a reduction in the income of the professional fishermen, and this reduction continued in certain areas in 1950. During 1951, on the other hand, the income again increased, chiefly because of the increased average prices for the principal species of fish.

"Transfer Rollers for Fillet Conveyor Belts," by H. E. Power, article (also Atlantic Fisheries Experimental Station Note No. 129), Progress Reports of the Atlantic Coast Stations, No. 56, July 1953, pp. 315, illus., printed, in English and summary in French. Fisheries Research Board of Canada, Atlantic Fisheries Experimental Station, Halifax, N. S. This report describes two slightly differing transfer rollers for fillet conveyor belts which have proved successful. These rollers serve to transfer fillets from one conveyor belt to another conveyor belt, or drum, running in the same direction at a slightly faster speed and at a slightly lower level.

"Tuna Marking, a Progress Report," by Rober C. Wilson, California Fish and Game, vol. 39, no. 4 (October 1953), pp. 429-42, printed. California Department of Fish and Game, Sacramen-

to, Calif. The Pacific tuna fishery is the largest in California and the most valuable fishery in the country. It is important that the populations of tuna be defined, and one method of accomplishing this is through tagging. Morphometric studies have been revealing, but they lack the positive conclusions that a successful tagging program would furnish. Past experience in tuna tagging has been mostly unsuccessful, especially with albacore. It was concluded that a suitable tuna tag had never been used. In developing tags for the present program, the criteria included (1) ability of the tag to be readily seen, (2) minimum damage and impairment of movement for the fish, (3) chemical inertness and nontoxicity of the tag material, (4) ease of application, and (5) ability of the tag to stay on the fish for a long time. Previous tests of tuna tags in a water tunnel by Alverson and Chenoweth were valuable in developing nine possible tags for the present program. Two field trials have been carried out, and all but three types of tags have been abandoned. The successful tags are constructed of colored Fibron plastic tubing, outside diameter 0.098 inch, inside diameter 0.066 inch, and from 22 to 30 cm. in length. The legend is printed either on paper or on a smaller white piece of plastic tubing. Stainless steel wire or nylon line is threaded through the tubing for attachment. The tuna are tagged in a cradle with sponge rubber sides and a built-in measuring device. The tag is inserted, with a needle, through the flesh just back of the second dorsal fin. The tuna is then returned to the water as quickly as possible. Holding a hand lightly over the eyes of the fish aids in keeping it quiet during tagging. In the first field trial, 4 yellowfin tuna were recovered out of a total of 350 which were tagged. In the second field trial, 1,600 yellowfin were tagged, 10 were recovered; 223 albacore were tagged, 2 were recovered; 589 skipjack were tagged, none recovered. Plans call for continuance of the second field trial until early 1954, when it is hoped that sufficient long-range returns will be received on which a full program of tagging may be based.

--D. E. Powell

(United Kingdom) White Fish Authority, Second Annual Report and Accounts for the Year Ended 31st March, 1953, 36 p., printed, 1s. 3d. (31 U. S. cents net). Her majesty's Stationery Office, London, England, 1953. Describes the composition and general functions of the White Fish Authority; and discusses the production of fish and shellfish, marketing and distribution, and research and training program. Appendices present data on distribution of trawlers by ports; age distribution of trawler fleet; numbers, facilities and activities of coastal and inland wholesalers.

"The Use of Monofilament Nylon for Attaching Petersen Disk Fish Tags," by Parke H. Young, Jack W. Schott, and Robert D. Collyer, California Fish and Game, vol. 39, no. 4 (October 1953), pp. 445-62, printed. California Department of Fish and Game, Sacramento, Calif. A program of tagging kelp bass, initiated in 1952, revealed that stainless steel and silver wire pins were inadequate for use in affixing Petersen disk



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tags. The wire caught on rocks, kelp, and other debris, causing loss of many of the tags. Consequently, experiments using monofilament nylon for attaching disk tags to yellowtail and surf fishes were begun in 1952. These tests indicate that monofilament nylon is superior to stainless steel or silver wire under certain conditions. Aquarium experiments at Scripps Institution of Oceanography showed that, after 10 months of aquarium life, yellowfin and spotfin croaker were in excellent condition after tagging with disk tags attached with monofilament nylon. Conventional strap tags attached to the opercle in the same tests were lost. Tagging of sea bass in the ocean during 1952 resulted in a recovery rate of 9.9 percent for nylon as compared to 6.9 percent for silver wire. Sea tagging of yellowtail has revealed that nylon did not irritate the fish, and in each recovery there has been no change in tag condition. One of the problems connected with the use of nylon for tag attachment was that of finding proper knots. The following knots were used successfully: blood knot, turban knot, double square knot, triple overhand w/square knot. A length of nylon 30 inches long (doubled to form a length of 15 inches) has been found adequate for tagging. Tags were placed on the posterior dorsal part of the head on croaker and surfperch, with the nylon passing through the supraoccipital bone. Corbina, yellowtail, and kelp bass were tagged below and slightly back of the first dorsal fin insertion. For the slower-swimming fishes, slightly concave tags were used to reduce the tendency of the tag edges to cut into the fish. A plastic spacing device was developed to provide space for growth between the tag and the flesh of the fish. A special tagging needle tool was also developed. Tagging with nylon is slower than when wire is used for attachment. In the tests to date, there has been no evidence of corrosion of the nylon or indication of toxicity to the fish tagged. The cost of a strand of nylon for attachment of one tag is about 1½ cents. Although the present experiments are encouraging, not enough time has elapsed to evaluate the desirability of using nylon for long-term exposure to sea water.

--D. E. Powell

(Washington) 1952 Washington Commercial Fishing Statistics, 47 p., printed. Washington State Department of Fisheries, 1308 Smith Tower, Seattle, Wash., 1953. Consists almost entirely of tables showing landings of fish, shellfish, and fish livers in the State of Washington by districts and by species and gear. Data are for 1952, with comparative data for 1951 in all cases. Comparative statistics in many of the tables are shown back to 1935. The number of each species of salmon caught in each district by various types of gear is shown for 1935 through 1952. One of the tables shows Washington's canned salmon pack from 1900 through 1952, with the pack for the more recent years given in greater detail. Data on the canned pack of other fish and shellfish are also shown. In addition, the report includes historical data on the Washington and British Columbia packs of sockeye salmon, and the monthly salmon escapement over Bonneville Dam. Data are likewise presented

on the number of commercial fishing licenses issued by the Department and the receipts from licenses, miscellaneous tax items, and fines. The value of the Washington fishing industry is presented for 1952; and the wholesale value of the landings of fish, shellfish, and liver products by major species and categories is given for 1951 and 1952.

Foreign Commerce Yearbook, 1951, 728 p., \$1.50. Office of International Trade, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, Washington 25, D. C.) Contains basic statistics on foreign trade and related information concerning 87 countries, including condensed fisheries production data for a few of the countries. The highly condensed data covering 1951 were compiled from official publications of the various countries, supplemented by information from international agencies, the U. S. Foreign Service, and other U. S. Government sources. Figures are also given for 1948, 1949, and 1950. No prewar statistics are shown. For each country, a brief description is given of its area and population, agriculture, fishing, forestry and mining, industrial production, transportation, and finance. Accompanying trade statistics show value and volume of trade with other nations and value and volume of imports and exports of the principal commodities traded with the United States and the rest of the world. The new yearbook continues a series which has been issued by the Department of Commerce annually since 1922, except for the period 1939-1947, when the disruption of trade by the war and the subsequent unavailability of information on many areas caused a suspension.

On the Metamorphosing Stages of the Talabon Eel, MURAENESOX TALABON (Cantor), with Descriptions of Some Leptocephali from the Estuaries of Bengal and Orissa, by S. Jones and V. Rayappa Pantulu, 12 p., illus., printed. (Reprinted from Journal of the Asiatic Society, Science, vol. XVIII, no. 2, 1952, pp. 129-140). Central Inland Fisheries Research Station, Barrackpore, Via: Calcutta, India. Describes the metamorphosing stages of Muraenesox talabon (Cantor) and some Leptocephali collected from the Burhabalang and Hooghly estuaries in Orissa and Bengal.

"Pen Construction, for Refrigerated Fish Holds" article, Trade News, April 1953, vol. 5, no. 10, pp. 7 and 9, illus., processed. Department of Fisheries, Ottawa, Canada. Describes the development of refrigerated fish holds for Atlantic fishing vessels. The tests were made under the direction of the Atlantic Experimental Station of the Fisheries Research Board of Canada at Halifax, N. S. Also describes the development of pen shells of heavy metal sheet construction which could be utilized in fish holds. The method of construction of the pens is described and illustrated.

Report to Congress on the Mutual Security Program, 65 p., illus., printed, 35 cents. Mutual Security Agency, Washington, D. C., June 30, 1953. (For sale by Superintendent of Documents, Washington 25, D. C.) Covers the

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operations of the Mutual Security Program during the six months ended June 30, 1953.

Studies on Fish Preservation at the Contra Costa Steam Plant of the Pacific Gas and Electric Company, by James E. Kerr, Fish Bulletin No. 92, 70 p., illus., printed. California Department of Fish and Game, San Francisco, Calif., 1953. The construction of a large steam plant on the San Joaquin River near Antioch, California, presented a grave potential threat to the valuable salmon and striped bass resources of the area. The studies described in this report reflect the cooperative effort of industry and government agencies to solve this difficult problem in conserving natural resources.

Wisconsin Game Fish, 26 p., illus., printed. Wisconsin Conservation Commission, Madison, Wisconsin. Discusses fish management programs, fishery biology, fish propagation, and rough fish control in Wisconsin. Descriptions of some of the most common fish in Wisconsin (with illustrations in color), their general characteristics and habits, and spawning habits are included. Although intended primarily for the sports fisherman, the publication contains information of interest to the commercial fisherman.

#### TRADE LISTS

The Commercial Intelligence Branch, Office of International Trade, U. S. Department of Commerce, Washington 25, D. C., has published the following mimeographed trade list. Copies of these lists may be obtained by firms in the United States from that Office or from Department of Commerce field offices at \$1 per list:

Oils (Animal, Fish, and Vegetable) - Importers, Dealers, Producers, Refiners, and Exporters - New Zealand, 5 p. (October 1953). Lists the names, addresses, and size of the various firms handling fish oils and their U. S. representatives, if any. The report points out: "About 80 percent of the fish oils produced are exported, mainly to the United Kingdom and Australia, though at one time the United States was a customer." It also points out that there is an industry in New Zealand producing shark-liver, halibut, cod-liver oils, etc.

Oils (Animal, Fish, and Vegetable) - Importers, Dealers, Producers, Refiners, and Exporters - Western Germany and Berlin. Lists the names, addresses, and size of the various firms handling fish oils. Also contains a brief summary of the animal, fish, and vegetable oils industry.



#### EFFECT OF BRINING COD FILLETS BEFORE FREEZING

Experiments have shown that a 1 minute dipping of cod fillets in a salt solution (15 percent NaCl) before freezing has no effect on the amount of drip of the fillets after defrosting, if the fillets are cut from very fresh cod and frozen before onset of rigor mortis, as is often the practice in Denmark. Fillets from cod stored several days in ice and fillets from very fresh cod subsequently stored up to 5 days at below 0° C. (32° F.) when dipped in salt solution before freezing showed less drip after defrosting, but the quality of such fillets was in all cases definitely inferior to fillets cut from very fresh cod and frozen without delay.

Arseretning fra Fiskeriministeriets  
Forsogslaboratorium, Copenhagen, 1953.