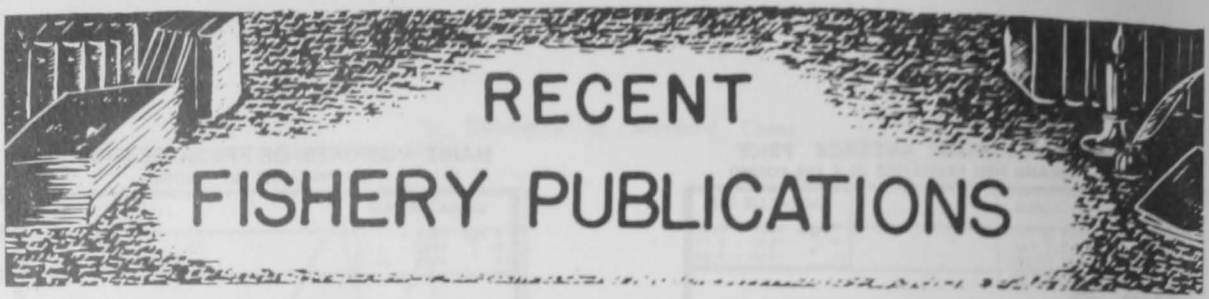

Recent publications of interest to the commercial fishing industry are listed below.

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.
FL - FISHERY LEAFLETS
SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW
SSR.-FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number Title

CFS-641 - Frozen Fish Report, May 1951, 10 p.
CFS-642 - Massachusetts Landings, March 1951, 14 p.
CFS-643 - Texas Landings, April 1951, 4 p.
CFS-644 - Maine Landings, March 1951, 4 p.
CFS-645 - Fish Meal and Oil, April 1951, 2 p.
CFS-646 - Alabama Landings, April 1951, 4 p.
CFS-647 - Florida Landings, April 1951, 4 p.
CFS-648 - Mississippi Landings, January 1951, 2 p.
CFS-649 - Mississippi Landings, February 1951, 2 p.
CFS-650 - Mississippi Landings, March 1951, 2 p.
CFS-652 - Mississippi Landings, April 1951, 2 p.
FL -293 - List of Fishermen's and Fish Shore Workers' Unions in the U.S., Alaska, and Hawaii (Revised), 8 p.
FL -390 - Fishery Resources of Turkey, 25 p.
SL -27 - Wholesale Dealers in Fishery Products, Indiana, 1951, 1 p.

Firms Canning (Revised):
SL -102 - Maine Sardines, 1 p.
SL -102A- California Sardines, 1 p.
SL -103 - Tuna and Tunalike Fishes, 1950, 2 p.
SL -104 - Mackerel, 1950, 2 p.
SL -105 - Alewives and Alewife Roe, 1950, 1 p.
SL -106 - Shad or Shad Roe, 1950, 1 p.
SL -109 - Caviar and Fish Roe, 1950, 2 p.
SL -110 - Oysters, 1950, 2 p.
SL -112 - Shrimp, 1950, 2 p.
SL -116 - Food for Animals, from Fishery Products, 1950, 1 p.
SL -118 - Groundfish Flakes, 1 p.

Firms Manufacturing (Revised):
SL -152 - Oyster Shell Products, 1950, 1 p.

Number Title

Firms Manufacturing (Revised) (Cont.):
SL -155 - Marine Pearl-Shell Buttons, 1950, 1 p.
SL -159 - Freshwater Mussel-Shell Products, 1950, 1 p.
SL -160 - Menhaden Oil and Meal, 1950, 2 p.

Sep. 284 - Japanese Tuna-Mothership Operations in the Western Equatorial Pacific Ocean.
Sep. 285 - 1950—An Unusual Haddock Year on Georges Bank.

SSR-Fish. No. 35 - English Translations of Fishery Literature, 65 p., March 1951.
SSR-Fish. No. 58 - A Fishery Survey of Southern Coastal Waters, by Raymond J. Buller, 23 p., illus., February 1951. (This is the first of a series of reports, based on the work of the Albatross III, concerning hydrographic conditions of, and fishing operations in, southern Atlantic coastal waters. The survey reported upon was conducted in May and June 1949, under a cooperative agreement between the Institute of Fisheries Research of the University of North Carolina and the U.S. Fish and Wildlife Service.)
SSR-Fish. No. 61 - Sea Lamprey Spawning Runs in the Great Lakes in 1950, by Vernon C. Applegate and Bernard R. Smith, 53 p., illus., April 1950.
SSR-Fish. No. 62 - A Study of the Causes of Death of Bait Fishes, by Yasuo Suehiro, 59 p., illus., March 1951.

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

Number Title

SSR-Fish. No. 63 - Tests of Hatchery Foods for Blueback Salmon 1950, by Leslie A. Robinson, Merl H. Payne, David D. Palmer, and Roger E. Burrows, 24 p. May 1951.

Number Title

SSR-Fish. No. 64 - Effect of Tagging on the Subsequent Behavior and Condition of Red Salmon, by G. J. Eicher, Jr., 5 p., May 1951.

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

Key to the Families of Common Commercial Fishes in the Philippines, by Augustin F. Umali, Research Report 21, 47 p., illus., printed, 20 cents, 1950. This report is an attempt to frame an artificial key to the families of the most common commercial fishes found in Philippine waters. Two sets of keys have been compiled: one for the cartilaginous fishes represented by the sharks, rays, and their allies; and another for the bony fishes, or true fishes, to which group the majority of the present-day forms belong. A list of the representative species and the localities where each is abundantly caught is likewise included.

Larvae of Tuna and Tuna-Like Fishes from Philippine Waters, by Charles B. Wade, Fishery Bulletin 57 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 51), 41 p., illus., printed, 25 cents, 1951. The results of the study conducted by the Philippine Fishery Program of the U. S. Fish and Wildlife Service of larval forms of tuna-like fishes collected in Philippine and adjacent seas are recorded in this publication. Five genera, embracing four known species, of larvae previously unknown in the western Pacific are described and illustrated: Grammatorcynus bicarinatus, Neothunnus macropterus (yellowfin tuna), Katsuwonus pelamis (skipjack tuna) Euthynnus yaito, and Auxis sp. (?). Distribution and abundance of larvae throughout the year are discussed, and tentative spawning areas are defined. Some evidence of diurnal vertical migration was discovered for all the species except Grammatorcynus bicarinatus.

THE FOLLOWING SERVICE PUBLICATION IS AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED IN THE REVIEW.

Observations on Gonad Development, Spawning and Setting of Oysters and Starfish in Long Island Sound, Bulletin No. 2, vol. 15, June 15, 1951, 2 p., free. (Available upon request from the Fishery Biological Laboratory, U.S. Fish and Wildlife Service, Milford, Conn.) First of this year's series of special bulletins issued periodically each oyster season for information of oyster growers. The bulletins will describe the progress of accumulation of spawn in oysters during the prespawning and spawning periods, report on the intensity of spawning of the oyster population at different depths of Long Island Sound, give the number of oyster larvae found in the water, and report on the beginning and intensity of oyster set at different sections of Long Island Sound throughout the setting season. Observations of a similar nature will also be made on the common starfish of Long Island Sound, which is the chief enemy of oysters in our waters.

ARTICLE BY FISH AND WILDLIFE SERVICE AUTHORS IN OTHER PUBLICATIONS

Spawning and Setting of the American Oyster, O. Virginica, in Relation to Lunar Phases," by V. L. Loosanoff and C. A. Nomejko, article, Ecology, January 1951, vol. 32, no. 1, pp. 113-34, printed, single copy of periodical $2.00. Duke University Press, Box 6697, College Station, Durham, N. C. In this article the authors discuss the relation between the lunar phases and the spawning and setting of the American oyster. According to the authors, in general, "it was found that in Long Island Sound no definite relationship exists between the important events in the propagation of oysters and the lunar phases. All of the events, such as beginning of spawning, beginning of setting, and dates of maximum sets, may happen at any of the four lunar phases and, therefore, under widely different hydrostatic conditions.

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.

"Age and Length Composition of the Sardine Catch off the Pacific Coast of the United States and Canada in 1950-51," by Frances E. Felin, Anita E. Daugherty, and Leo Pinkas, article, California Fish and Game, July 1951, vol. 37, no. 3, pp. 339-49, illus., printed. Division of Fish and Game, Department of Natural Resources, San Francisco, Calif. This is the fifth report on the age and length composition of the sardine catch off the Pacific Coast of the United States and Canada and covers the 1950-51 season. There was no fishery off the British Columbia, Washington, and Oregon coasts in this season; and the interseason (summer) fishery in California was prohibited by law. Included are tables showing the length frequency distributions of fish of each year class sampled in the 1950-51 season by sex and region of catch; calendar dates for the lunar months in the season; and the number of fish, by region of catch, in each year class caught during the season.

(Alaska) Annual Report No. 1 for the Year 1949, 40 p., illus., printed, Alaska Department of Fisheries, Juneau, Alaska. This is the first annual report of the Alaska Fisheries Board, created by the 19th Territorial Legislature and approved March 21, 1949. This report is a resume of the activities of the Alaska Department of Fisheries for the year 1949. Included in this booklet are statistics giving the number of salmon canneries and the pack by districts for 1878-1949; comparative values of canned salmon, giving initial price per case and total value by species for 1905-1949; production and values of 25 fishery products taken in Alaskan waters for 1936-1947; a chronological history of salmon canneries in southeastern Alaska; and the Act that established the Alaska Department of Fisheries.

Annual Report of the Government of the United States to the Food and Agriculture Organization of the United Nations, prepared under the direction of the U.S.-FAO Inter-Agency Committee, 172 p., processed, free (supply is limited). Office of Foreign Agricultural Relations, U.S. Dept. of Agriculture, Washington, D.C., 1951. A section (5 p.) of this report, which deals with the food and agriculture developments in the U.S., gives a resume of the fisheries activities in the U.S. for 1950 and early 1951. Figures given cover total production, number of fishermen, vessels, shore workers and plants, and the production of leading species (menhaden, pilchards, salmon, tuna, mackerel, and shrimp). Per capita consumption and prices for leading species of fish and byproducts are also presented. Mention is made of new production methods, marketing trends, fishery education and research, and 1950 legislation affecting the fisheries. Also included are discussions of the international conservation agreements entered into by the United States, ECA's technical assistance projects, the Fish and Wildlife's training of foreign fishery experts and fishery projects under the Point Four Program.

VIII. The Biology of the Longhorn Sculpin, MYOXOCEPHALUS OCTODECIMSPINOSUS Mitchill, with a Discussion of the Southern New England "Trash" Fishery, by James E. Morrow, Jr., (Studies of the Marine Resources of Southern New England, vol. XIII, article 2), 89 p., illus., printed, $1.35. Bulletin of The Bingham Oceanographic Collection, Yale University; published by the Bingham Oceanographic Laboratory, New Haven, Conn., February 1951. The second part of this publication discusses the recent trash fishery in southern New England. The great volume of trash landings in 1949 and 1950 is pointed out, and the reasons for the meteoric rise and fall of this fishery are described. "In a theoretical discussion based on some rather rough estimates," according to the author, "it is pointed out that stocks of trash fish in general may be expected to decline, and that the sculpin" (one of the many fish harvested by the trash fishery) may suffer serious depletion within ten years. However, the author adds, "continuation of the trash fishery would be expected to have a beneficial effect on the fishing industry as a whole in this region." The author suggests that studies of the biology and ecological relationships of the major species, as well as the collection of catch statistics, should be actively pursued in order to provide data on which to base regulatory measures for this fishery. The first part of this publication reviews the history of the longhorn sculpin (an abundant resident species in the North Atlantic coastal waters of North America, ranging from New Jersey to Nova Scotia), including names and description. In addition, length-weight relationship is treated in some detail; breeding habits of species and the sexual cycles of males and females are described; age determination is discussed; data on seasonal movements and migrations, and food habits are presented.

A Businessman's Guide to Trade with the United Kingdom, 151 p., printed. Special ECA Mission to the United Kingdom (Available from the Economic Cooperation Administration, Washington 25, D.C.), 1951. This publication is designed by ECA to facilitate the further development of trade relationships between the businessmen of Great Britain and Northern Ireland, and the United States, with particular reference to those smaller manufacturers and exporting firms whose foreign trade opportunities may be aided. A summary of economic information regarding the United Kingdom, together with a resume of import

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and export procedures which may be useful to American businessmen are contained in this manual. The book contains five sections: General Information; Import Regulations and Purchasing Methods; Making Contact with the United Kingdom Businessman; Preparing Shipments for the United Kingdom; and Licensing Firms in the United Kingdom. There is also a directory of actual or potential United Kingdom importers listed by commodities and alphabetically. Canned fish is included under the commodity listing, but the only name included is the Canned Fish Division of the U. K. Ministry of Food.

ıadian Fishery Markets (Outlook for 1951: Review for 1950), Market Bulletin No. 5, 50 p., processed, illus. Department of Fisheries, Ottawa, Canada, May 1951. Contains sections on the Canadian fisheries outlook for 1951, markets for Canadian fish in 1950, general factors affecting fish marketing, and a statistical appendix. Included is a review of production and marketing in 1950.

ıse and Prevention of Black Spot on Shrimp," by E. A. Fieger, article, Ice and Refrigeration, April 1951, vol. 120, no. 4, pp. 49-50, 64, illus., printed, 35 cents per copy. Ice and Refrigeration, 433 N. Waller Ave., Chicago 44, Ill. This article contains the findings on the causes and prevention of "black spotted" or "black" shrimp, a condition which at times develops during refrigerated storage. In general, black discoloration begins to appear in the membrane which connects two overlapping segments. Pronounced black bands appear usually where shell segments overlap; head and tail fins are black; and the crawling legs change color. The results of this scientific investigation indicate that black spots are not caused by microorganisms, nor are they a result from some chemical change in the shrimp brought about by microbial activity, but probably are a result of enzyme action. Laboratory experiments indicate that an enzyme system is involved in black-spot formation and that air (specifically oxygen) is required. The article goes on to indicate further experiments which seem to bear out this conclusion. The author suggests that by limiting the amount of air in contact with the shrimp, black-spot development can be prevented. This can be done either by packing the shrimp in water and ice in sealed containers, or by treating the shrimp with a one-percent solution of sodium bisulfite or sodium sulfite.

n Shells and Button," by R. Rhodes, article, he Ohio Conservation Bulletin, June 1951, ol. 15, no. 6, pp. 14-15, illus., printed,) cents per copy. The Division of Wildlife, hio Department of Natural Resources, Columbus, hio. This is an article on the behind-scenes tory of pearl buttons. Today there are less than a half-dozen factories making buttons from clam shells. In years gone by, clammers worked Ohio's river beds and collected tons of shells. The clammers had to recognize some 25-30 different shells and their merits as button material. Clams were harvested by using a rake with suspended wires. Operated from a floating barge, this rake was dragged across the beds. As the tip of the wire touched the siphon, the shells closed on the wire and clams were hauled aboard by the dozens each time the rake was raised. The shells were then soaked and the animal parts removed. Buttons were cut from the clean, wet shells. After being cut, the buttons are perforated and polished. Waste clam-shell material was utilized in road surfacing, house trim, chicken grit, and agricultural lime. In recent years, restrictive State legislature has limited production of local clam shells. Cutters in Manchester, Ohio, are now using mainly shells imported from India and the Persian Gulf.

(Connecticut) Report of the Shell-Fish Commissioners (July 1, 1948-June 30, 1950), 20 p., printed. Office of the Shell-Fish Commission, 185 Church St., New Haven, Conn., 1950. In addition to a financial statement, this report gives an alphabetical list of individuals and vessels licensed to work on the natural oyster beds of Connecticut; a list of owners and acreages of grounds under perpetual franchise; State grounds; and town grounds. Included is a statement of how to lease grounds and excerpts from the State's shellfish laws. No data on production are given.

The Effect of Different Methods of Preservation on the Nutritive Factors in Fish, by B. E. Bailey, Industrial Memorandum No. 15, 4 p., processed. Pacific Fisheries Experimental Station, Fisheries Research Board of Canada, Vancouver, B. C., Canada, April 2, 1951. This report considers the nutritive changes that take place when fish are preserved and subsequently stored. The nutritive factors that are subject to changes in the preservation of fishery products are proteins, fats (oils), vitamins, and minerals but mainly the first three. Fish preservation is considered under six categories: freezing and cold storage, canning, smoking, salting, dehydration (drying), and cooking. The characteristics of fishery products are examined in each category with respect to protein change, loss of proteins and vitamins through processing, decomposition, and fatty oil and vitamin changes.

Evolution et Progrès Récents des Procédés de Fabrication des Conserves de Poisson en France (Evolution and Recent Progress in the Manufacture of Canned Fish in France), by Maurice Boury, Notes et Rapports, (Nouvelle Série), no. 10, 19 p., printed, in French, 50 francs (about 15 U.S. cents). Office Scientifique et Technique des Pêches Maritimes, Paris,

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France, October 1950. This study briefly traces the growth of the French canned fish industry and considers, in some detail, methods for the preparation and canning of fish. The study is in two sections: fish of small or average-body length (sardines, herring, and mackerel), and those species of larger proportions (tuna). Methods now in practice are explained for preparing the small fish, including trimming, cleaning, and curing; drying and cooking; and various apparatus used in cooking and/or drying the fish. Various methods for cooking or drying the fish are considered in some detail--deep-fat fryers, cooking in brine, steam cooking, hot-air ovens, and the recently-developed ovens for cooking with infrared rays. As to the nature of the infrared-ray ovens, two types are now in use; one functioning on gas and the other on electricity. A detailed description of the ovens and their results are given in this booklet. The processing of fish after they have been placed in cans is largely accomplished by two systems, that of the Mather and Platt system and the International Machinery Corporation system, and a detailed description is given for operations of these conveyor-type cookers. Tuna are canned by these two methods: packing tuna in the cans after cooking or packing tuna into cans prior to cooking. The latter method is used principally for the canning of natural tuna "thon au natural." Under a consideration of general techniques, the publication considers the use of infrared rays during the precooking process, the employment of electrostatic heating, and the use of antibiotics in the sterilization process.

Fisheries Investigations of the St. Johns River and Lake Okeechobee, 1948-50, with Recommendations for Management (A Report to the Director and Members of the Florida Game and Fresh Water Fish Commission, Revised), 48 p., tables, processed. Fish Management Division, Florida Game and Fresh Water Commission, Tallahassee, Florida, April 3, 1951. In this publication, factual information is presented on the life history, abundance, and growth of the important species of fresh-water fish in the St. Johns River and Lake Okeechobee area. The results of a survey show that bream, crappie, and catfish can be marketed commercially with an annual combined value of $1.2 million. The findings of the two-year survey include information on the physiography of the fresh-water areas, the effect of various commercial fishing operations upon the game fish populations, potential annual production and economic potential of fishery resources, aid to the economic status of the communities involved during the course of the survey, and the methods of improving sport fishing. This publication makes extensive use of graphs and charts to illustrate the findings of the survey, and recommendations are made in the conclusion for these Florida fresh-water areas.

Handbook of Emergency Defense Activities, 119 p., printed, 25 cents. General Services Administration, Washington, D.C. (For sale by Superintendent of Documents, Washington 25, D.C.), June 1951. This is a guide to Federal agencies all or part of whose functions are devoted to mobilization or to other related phases of the defense program. No attempt has been made to include activities of agencies originally created for nondefense purposes, unless separate organization entities have been established to handle emergency functions. Included are brief organizational outlines and the names and addresses of officials of emergency defense agencies, the Department of Defense, and the United States Coast Guard. Included is the Defense Fisheries Administration. This booklet is designed to assist the public in reaching the services it needs in connection with the defense program.

"Improving the Design of Fishing Boats," by Jan-Olof Traung, article, FAO Fisheries Bulletin, Jan./Feb.-Mar./Apr. 1951, vol. 4, no. 1-2, pp. 3-27, illus., printed. Food and Agriculture Organization, Rome, Italy. (Bulletin available from International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N. Y., annual subscription US$1.50, single copy 30 cents.) This article attempts to show that it is of the utmost importance to the fishery industries that fishing boats be designed so that they will perform as economically and efficiently as possible. Compared with other sections of the industry, however, little research, study, and governmental support have been given to the design of fishing boats. This article gives some examples as to how designs can be improved with great savings in operation and better performance of the boats. The author points out that FAO is keeping abreast of the developments in fishing boat design and building and is willing to discuss and exchange information with individual fishing boat designers. In addition, FAO is willing to study designs submitted by member governments to suggest improvements, and to advise on further research, tank testing, etc., in order to avoid duplication of work. On account of the large expenses of making tests and research by any one owner or builder, the author suggests that regional fisheries associations, etc., cooperate in conducting test programs where boat shapes and requirements are similar, spreading the cost so as not to place too large a burden on any one operator. This article includes general remarks on fishing boat design; speed; a summary of fishing boat model tests; and a discussion of tank-testing experiments and their results.

(Maine) 16th Biennial Report, Department of Sea and Shore Fisheries (For Period July 1, 1948

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to June 30, 1950); 78 p., printed, illus. Department of Sea and Shore Fisheries, Augusta, Maine, 1951. This report covers the activities of the Department for the biennium commencing July 1, 1948, and ending June 30, 1950. Pertinent information on expenditures, income, licenses, violations, statistics, and reports from the several departmental divisions are presented. The statistics consist of landings at Maine ports in 1948 by counties and species. Presented in this report are progress reports on investigations, including the work done on lobsters, smelt, shrimp, scallops, Atlantic salmon, tuna, and clam flat pollution; as well as discussions of the shellfish program, Brunswick quahog seeding project, clam meat assays, experiments in mussel control on clam-producing areas, marine worms, and lobster plugs and the their effect on the meat of the lobster's claw. The Commissioner presents a list of recommendations which include the following: (1) Continuation of periodic surveys of closed clam areas for the purpose of opening additional flats to commercial digging; (2) a full review of the present system of town control of clam flats; (3) that the Legislature open for discussion the feasibility of changing the short end lobster measure to coincide with changes recently made by the Massachusetts lawmakers; (4) further consideration of legislation to prohibit the shipping of clams in the shell out of the State; (5) further protection of the lobster industry against increasing shipments of low-priced lobster meat in this State from Canada; (6) investigation of the feasibility of setting up a state-level inspection system for fresh and processed fish and shellfish; (7) firm demands that the Federal Government take adequate steps to protect the industry against growing and ruinous foreign competition; (8) greater representation and consideration for the fisheries in Federal Government; (9) Federal legislation to outlaw the advertising and selling of African and southern crawfish meat as lobster meat; (10) urge the U.S. Public Health Service to review and revamp its present standards for determining the sanitary aspects of shellfish that may be accepted in interstate commerce; (11) seek closer cooperation between the Department of Sea and Shore Fisheries and the U.S. Fish and Wildlife Service on research and technological projects to assist the fisheries.

Meeting Defense Goals a Must for Everyone (Second Quarterly Report to the President by the Director of Defense Mobilization), 52 p., printed, 30 cents, Office of Defense Mobilization, Washington, D.C. (For sale by Superintendent of Documents, Washington 25, D.C.), July 1951. This is the second quarterly report on the defense mobilization program of the United States. It covers the work of all of the participating defense agencies and reports not only on the defense mobilization of the United States but on the progress of building defensive strength throughout the free world. Included are discussions on the mobilization pattern, military production, expansion of our basic economy for defense, manpower shortages, and inflation. In reporting on the potential farm output, the report points out that "Production of fish products in the fisheries industry will also be maintained at a high level."

(Michigan) Fifteenth Biennial Report 1949-50, The Department of Conservation, Fish Division, State of Michigan, 67 p., printed. Conservation Commission, Lansing, Michigan, 1951. This report includes the activities and statistics for 1949 of the Michigan State fisheries. Comparative data are also included to aid in the interpretation of these statistics. Functions of the Fish Division are described: fishery management, hatcheries, and conservation measures. Fishery research reports published by the Institute of Fisheries Research include lake mapping and surveys, fish mortality and disease, age and growth of fishes, and other investigations. In the section on commercial fisheries, data are presented for the catch and the availability of whitefish, lake trout, chubs, lake herring, smelt, yellow pike, and suckers. Tabular statistics for Michigan's five fishing areas: Lakes Michigan, Superior, Erie, and Huron, and Saginaw Bay, give details on gear, boats, buildings, and production by species, by months, by gear, and by sport trolling. Figures are also included for the mussel production in Michigan waters, and the results of noxious fish control.

The Netherlands (Including Overseas Relations and Territories)—A Businessman's Manual with Directories, 225 p., printed. Special ECA Mission to the Netherlands (Available from the Economic Cooperation Administration, Washington 25, D.C.), 1951. This publication is divided into four major sections: Part I—Manual; Part II—Netherlands Importers; Part III—Netherlands Exporters; Part IV—Netherlands Trading Firms Operating in Indonesia, Surinam, and Netherlands Antilles. The Manual Section contains general information on the Netherlands, import trade, business contacts, import authorizations and financing, exports, warehouse and related facilities, and industrialization. The listing of importers and exporters is by commodity groups, and a separate listing of firms exporting fishery products is included.

(New Zealand) Report on Fisheries For the Year Ended 31st March, 1950 (Extract from Annual Report of Marine Department), 38 p., printed. Marine Department, Government Printer, Wel-

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lington, New Zealand. This is a report of New Zealand's fisheries with statistical data for the various phases of this industry for the year ending December 31, 1949. Total production figures, both comparative and historical, are given by species and by port, including information on number of vessels and personnel, and methods of capture. Statistics for 1949 are also available for fish-liver oil, whaling, oysters, toheroa, mussels, whitebait, quinnat salmon, and canned fishery products. Information is also supplied on fresh-water fisheries and fresh-water fishery research.

Observations on Polydora (Mudworm) in South Carolina Oysters, by George D. Grice, Jr., Contributions from Bears Bluff Laboratories No. 11, 11 p., printed. Bears Bluff Laboratories, Wadmalaw Island, S.C., May 1951, free. This is a brief study of the oyster pest, Polydora, along the South Carolina coastal region to determine whether there is any correlation between the size of oysters, temperature and salinity of the water, seasons of the year, and Polydora infestations. The degree of damage or other lethal effects of the Polydora is not reported in this publication.

"Plastic Deterioration and Metal Corrosion in Petersen Disk Fish Tags," by A. J. Calhoun, D. H. Fry, Jr., and E. P. Hughes, article, California Fish and Game, July 1951, vol. 37, no. 3, pp. 301-14, illus., printed. Division of Fish and Game, Department of Natural Resources, San Francisco, Calif. Petersen-type tags are currently being used extensively along the Pacific Coast from California to Alaska in connection with fish tagging programs on more than 30 species of fish in California alone. These tags consist of two plastic disks held against the fish by a pin through both disks and some part of the fish's body—usually the base of the dorsal fin or the caudal peduncle. The disks ride on the pins like wheels on an axle. Concerned about the loss of tags due to corrosion of the pins in salt water and to breakage of the disks, the authors tested various metals commonly used with Petersen disks and examined critically disks and pins returned from fish tagged at sea. This article presents what the authors have discovered to date. They state that they do not believe that the Petersen disk is an ideal fish tag, even when it stays free of metal corrosion and plastic breakage, since the design has many disadvantages (it is slow to apply, does not allow for much growth of the fish, and is overly apt to catch on nets). On the other hand, the tag is less apt to be overlooked and can be attached to a wide variety of fish. In their summary, the authors point out that the failure of the plastic materials used for Petersen-type disk tags by the California Division of Fish and Game has presented serious problems. Cellulose nitrate has been the most satisfactory, although it has tended to become brittle after prolonged storage. Thin cellulose acetate disks (0.030 inch) seemed satisfactory on flatfish, but have failed badly on salmon; thicker ones (0.045 inch) have stood up fairly well. Vinylite disks have been unduly brittle and subject to cracking. Corrosion of metal wires used with these disks has been an even more serious problem. Nickel and Monel metal have proved entirely unsatisfactory because of their rapid corrosion on salt-water fish. Silver has been unsatisfactory because the wires broke. Stainless steel and tantalum are both highly promising on the basis of preliminary observations, and they are currently being tested further.

Proceedings of the Gulf and Caribbean Fisheries Institute, Third Annual Session, Miami Beach, November 1950, 152 p., printed. The Gulf and Caribbean Fisheries Institute, The Marine Laboratory, University of Miami, Coral Gables, Florida, June 1951. Presents all of the papers presented at the third annual session of the Institute. At the Commercial Fisheries Session, the papers presented dealt with the future of the red snapper fishery; problems of administration and transportation in the wholesale fisheries industry; the outlook for breaded shrimp and similar products; the outlook for shrimp production; and what does the future hold for the independent boat owner. Papers for the Inshore and Shell Fisheries Session included several on oysters in the Gulf area; measurement of the natural growth-rates of decapod crustaceans; and results of shrimp research in North Carolina. Subjects of the papers presented at the Economic Session included: the natural sponge fishery vs. synthetic sponges; the shrimp fisheries in the Gulf of Mexico; utilization of scrap fish and fish waste in the Gulf and Caribbean area; the fisheries of Surinam; and charter boat fishing in the Miami area. At the Fishery Administrator's Session, discussions and papers were concerned with problems of fishery administrators. Papers for the fishery Exploration and Technology Session discussed operation of the exploratory fishing vessel Oregon; effect of menhaden operations on other fisheries; control of fish spoilage by icing and freezing; the use of echo sounders in fisheries; the role of exploratory fishing in the development of commercial fisheries; and Florida's seafood sanitation program. The Caribbean and General Session was concerned with progress reports on the Gulf States Marine Fisheries Commission, the Atlantic States Marine Fisheries Commission, and a survey of the present knowledge of the Gulf of Mexico; the organization of the

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Florida and Alabama marine fisheries statistical systems; and results of Caribbean crawfish research. An appendix includes a bibliography on the fishes and fisheries of Puerto Rico, and a list of publications in fisheries on the Gulf and Caribbean area issued during 1950.

Report on the Fisheries Department of Madras for the Year Ending 31st March 1951, 50 p., printed. Development Department, Government of Madras, Madras, India, 1951. This report briefly reviews the activities of the Fisheries Department of Madras during 1949-50, as well as experiments conducted on a number of species of fish. For the first time studies on the productivity of chank beds and hydrobiology of pearl banks were started at the Tuticorin Biological Station. Results of deep-sea fishing conducted at 21 centers are reported to have been unsatisfactory due to frequent repairs required by the motor fishing vessels and general failure of the fishing season, which impaired fishing operations. Preservation and transportation of fish has shown some development. The Development Department is urging the canning of fish on an experimental basis since consumption of canned fish has increased and there is very little imported.

"Results of the Pismo Clam Censuses, 1948, 1949, and 1950," by Robert D. Collyer, article, California Fish and Game, July 1951, vol. 37, no. 3, pp. 331-4, printed. Division of Fish and Game, Department of Natural Resources, San Francisco, Calif. Since 1925, the Bureau of Marine Fisheries has made a census of the Pismo clam (Tivela stultorum) population in the Pismo Beach area during the period of lowest tides each November. This report covers the censuses conducted in 1948, 1949, and 1950. According to the author, the results of the clam censuses are perturbing. First, there has been an almost complete lack of young clams for the past three years. Second, there has been a reduction each year in the total number of clams found. The 1950 clam census showed the smallest clam population since 1941. Although the present status of the Pismo clams is bad, the author points out that there is also reason to expect good sets of young clams in the next few years and that the clam population will be re-established, at least temporarily.

(Rhode Island) Fifteenth Annual Report of the Department of Agriculture and Conservation, 1949, 99 p. and insert, printed. Department of Agriculture and Conservation, Providence, R. I., 1950. This publication includes a report of the Office of Fish and Game, which presents the number of commercial fisheries licenses issued (personal, dredging, and scallop) for each fiscal year 1945-46 through 1948-49; the lobster catch for 1949, number of lobster licenses issued, and revenue received; and the lobster catch by months.

A Salt Water Fish Pond, by G. Robert Lunz, Contributions from Bears Bluff Laboratories No. 12, 12 p., illus., printed. Bears Bluff Laboratories, Wadmalaw Island, S. Carolina, June 1951, free. This publication considers the cultivation of oysters and fish in impounded tidal ponds. Details of fish-pond construction and methods of operation are given. Fish cultivated in the experimental pond at the Laboratories are natural products entering only when the gates are open after draining, or entering as larval forms or small young when the pond receives new water from the spring tides. Species of fish found in the pond included mullet, bass, drum, trout, croakers, etc., and such shellfish species as shrimp and crabs. Tables present the temperature and salinity of the pond, and weight, length, and type of fish in the pond.

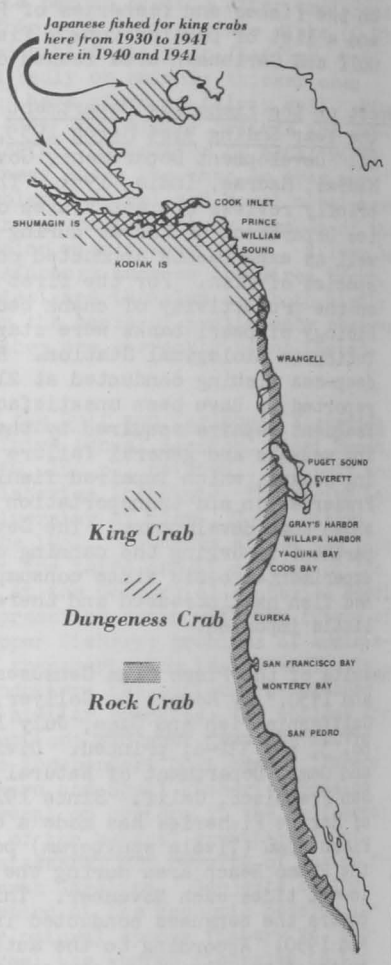
Supplement II to United States Import Duties (1950), 39 p., processed. U. S. Tariff Commission, Washington, D. C., June 1951. This is the second supplement to United States Import Duties (1950), bringing that publication up to date. This supplement indicates the changes to be made in the 1950 edition of Import Duties as previously supplemented in order to reflect the changes in duties as a result of the trade agreement negotiations conducted at Torquay, England. On June 2, 1951, the President issued a proclamation relating to the results of these recently concluded negotiations and as a result of this proclamation numerous changes in rates of duty became effective on June 6, 1951, and certain changes will become effective on July 6, 1951. (This supplement is free to persons who have already purchased or to new purchasers of the original document.)

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, JANUARY 1951, P. 109.

Torquay Schedule XX (United States of America)—General Agreement on Tariffs and Trade (United States Rates of Duty Negotiated at Torquay, England, September 1950-April 1951), Publication 4228, Commercial Policy Series 136, 91 p., processed. Department of State, Washington 25, D. C., April 1951. This publication lists the commodities by tariff paragraph with the United States rates of duty negotiated at Torquay, England, from September 1950 to April 1951. Certain Fishery products and byproducts are included in the list.

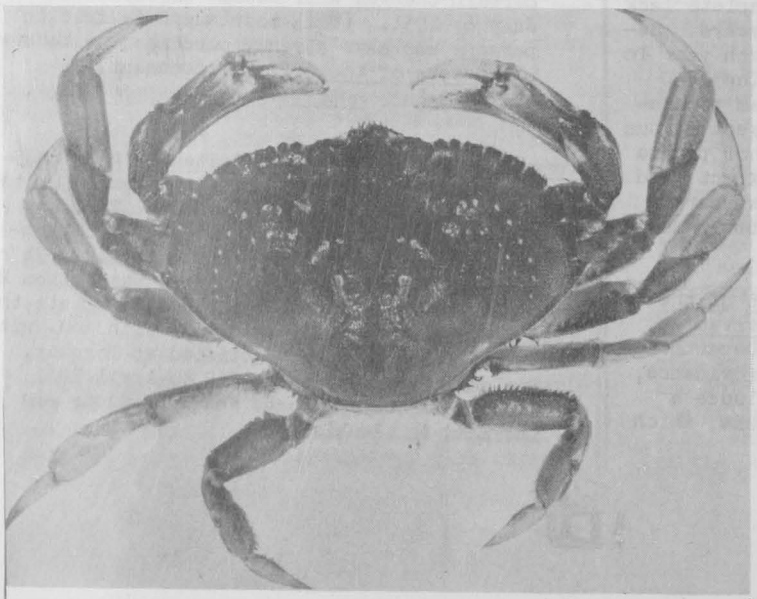
DUNGENESS CRAB

Of the several kinds of crabs which inhabit the Pacific Ocean, there is perhaps none more commercially important than the Dungeness crab. The origins of the crab fishery were in the San Francisco Bay area, and as early as 1890, one to two million crabs were taken annually. The Dungeness crab was at first taken from sheltered bays and inlets, but as the fishery expanded, fishermen set their crab pots in the more exposed coastal waters. The Oregon and Washington crab production has in recent years surpassed the annual California production, and appreciable catches of Dungeness crabs are now taken in southeastern and central Alaska. In 1949, the U. S. and Alaska production of Dungeness crabs totaled 35,033,701 pounds with a value of $3,543,139 to the fishermen. From this total, there were 114,854 standard cases (48 cans per case, each can containing 6½ oz. of meat) of crab meat packed, valued at $2,547,765 to the canners. West Coast plants canning crab meat in 1949 numbered 18 in Washington, 10 each in Oregon and Alaska, and 1 in California.



A large part of the Dungeness crab meat is marketed fresh or frozen on the Pacific Coast, but in Alaska almost the entire catch is canned. It is believed that the production of canned Dungeness crab meat can be increased in the future as the market is developed and methods of catching and processing are improved.

Female Dungeness crabs mature in about 4 years and measure about 4 inches across the shell. Males may require an additional moult, or about 5 years to reach maturity. In the vicinity of Puget Sound the average life span is approximately 8 years.



The greater portion of Dungeness crabs are taken in pots set 150 to 300 feet apart in 6 to 15 fathoms of water. Most traps are set and hauled by small power-boats equipped with a boom and power gurdy. When fishing the traps, the boat picks up the trap by means of a buoy line, hauls it on board, and sets a new baited trap. While the boat moves on to another trap, the first is unloaded and rebaited so that it can replace the next one pulled.