



## 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.  
 SSR - FISH - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).  
 SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

- | Number            | Title  |
|-------------------|--|
| CFS-1059          | - Texas Landings, October 1954, 3 pp.  |
| CFS-1065          | - Frozen Fish Report, October 1954, 8 pp.  |
| CFS-1066          | - Massachusetts Landings, September 1954, 8 pp.  |
| CFS-1071          | - New Jersey Landings, September 1954, 2 pp.   |
| CFS-1072          | - Rhode Island Landings, Jan.-Mar. 1954, 6 pp.   |
| CFS-1073          | - Rhode Island Landings, April-May 1954, 7 pp.   |
| FL - 147          | - List of Federal Fish-Cultural Stations (revised November 1954), 5 pp., processed.  |
| Sep. No. 389      | - Outlines of a Long-Range Frozen Fish Program for the Armed Forces.   |
| Sep. No. 390      | - Japanese Fish-Netting Industry.  |
| Sep. No. 391      | { Some Factors Affecting the Color of Fish Sticks.   |
|                   | { Preparation of a Smoked Salmon Caviar Spread.  |
| SSR-Fish. No. 112 | - Tuna Longline Fishery and Fishing Grounds, by Hiroshi Nakamura, 184 pp., illus., processed, January 1954. The author has gathered together data from past surveys of the Japanese tuna fishery covering about 20 years, and on the basis of these data has attempted to clarify the character of the tuna long-lining grounds of the eastern Indian Ocean and the western Pacific. Included are descriptions of the types of fisheries, characteristics of the tuna long-line fishery, general outline of fishing grounds and fishing seasons, fishes taken by tuna long-line fishery, fishing grounds, and the distribution of the tunas and spearfishes as shown by their catch rates. |
| SSR-Fish. No. 131 | - Mid-Pacific Oceanography: Part II-Transequatorial Waters, June-August 1950, January-March 1951, by Townsend Cromwell; Part III-Transequatorial Waters, August-October 1951, by Thomas S. Austin; 231 pp., illus., processed, June 1954.  |

SSR-Fish. No. 134 - Reaction of Tuna to Stimuli, 1953, by Albert L. Tester, Heeny Yuen, and Michio Takata, 37 pp., illus., processed, July 1954. This report includes the results of studies of the response of tuna (mostly "little tunny," *Euthynnus affinis*) to stimuli in tanks and ponds. It was found that the tuna in the pond responded positively and often violently to extracts of tuna and other fish flesh, viscera, etc. Sea tests were also conducted to observe the response of "wild" tuna not only to extracts, but also to visual stimuli such as lures of various sizes, shapes, and colors, used either alone or in conjunction with extracts. Although the work was conducted mostly from June to October 1953, sea tests extending from January 29 to November 13, 1953, are included. The main object of the studies was to study the response of tuna to chemical and visual stimuli in the hope that the information gained could be utilized in developing a substitute for live bait. The authors point out that: "In view of the lack of success in attracting local skipjack schools to the stern of a vessel and holding them there with the many materials and combinations of materials which have been used, we may ask what quality of attraction is missing. The missing quality is probably motion--the rapid motion of a living fish or squid, or the rapid motion of a lure trolled through the water. It may be that motion is a prerequisite to attraction by artificial lures. Other qualities of likely importance are size, shape, appearance, texture, and taste of the lures." An investigation of methods of imparting motion to small objects is presently under way. If a promising motile lure can be devised, it will be tested on schools of skipjack at sea.

SSR-Fish. 135 - Mid-Pacific Oceanography. Part IV, Transequatorial Waters, January-March 1952, by E. D. Stroup, 54 pp., illus., processed August 1954.

SSR-Fish. 138 - Virus Disease of Sockeye Salmon, Interim Report, by Stanley W. Watson, Raymond W. Guenther, and Robert R. Rucker, 36 pp., illus., processed, December 1954.

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

Description of Eggs and Larvae of Jack Mackerel (*Trachurus symmetricus*) and Distribution and Abundance of Larvae in 1950 and 1951, Fishery Bulletin 97 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 56), 40 pp., illus., printed, 30 cents, 1954.

Feeding Mechanism of the Sea Lamprey and Its Effect on Host Fishes, by Robert E. Lennon, Fishery Bulletin 98 (From Fishery Bulletin of

the Fish and Wildlife Service, vol. 56), 48 pp., illus., printed, 40 cents, 1954.

Intertidal Spawning of Pink Salmon, by Mitchell G. Hanavan and Bernard Einar Skud, Fishery Bulletin 95 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 56), 18 pp., illus., printed, 15 cents, 1954.

Method of Estimating Fish Populations, with Application to Pacific Sardine, by T. M. Widrig, Fishery Bulletin 94 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 56), 29 pp., illus., printed, 30 cents, 1954.

Noxious Marine Animals of the Central and Western Pacific Ocean, by Charles J. Fish and Mary C. Cobb, Research Report 36, 48 pp., illus., printed, 1954, 35 cents. This report is concerned with one of several oceanic-biology subjects designated by the Navy for investigation after World War II. The objective has been to assemble, analyze, and where possible correlate with environmental factors, available information on noxious marine animals of the central and western Pacific Ocean.

A Visit to a Federal Fish Hatchery, Circular 28, 8 pp., illus., printed, 10 cents, 1954. Describes and illustrates the many steps in the raising of different species of fish in the Fish and Wildlife Service hatcheries. Each hatchery propagates the kind of fish needed to support fishing in the waters stocked by the hatchery--waters in national parks and forests, wildlife refuges, and other fishing areas, and in farm fish ponds.

Whitings on the Coasts of the American Continents, by Isaac Ginsburg, Fishery Bulletin 96 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 56), 25 pp., illus., printed, 20 cents, 1954.

## MISCELLANEOUS PUBLICATIONS

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

Availability and Display of Frozen Foods in Retail Stores in Washington, D. C., Marketing Research Report No. 73, 30 pp., processed, August 1954. U. S. Department of Agriculture, Agriculture Marketing Service, Washington, D. C. (For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Reports on the results of a survey of 153 different frozen food items, including 21 fishery products.

"Bathypelagic Nemertean of the Pacific Ocean," by Wesley R. Coe, illus., printed, 75 cents. (Reprinted from Bulletin of the Scripps Institution of Oceanography of the University of California, vol. 6, no. 7, pp. 225-286, plates 8-9, 32 figures in text.) University of California Press, Berkeley 4, California, 1954.

"Bottom Trawl for Herring Fishing," by V. G. Maksheev and V. K. Savrosov (Murmansk Experimental Base), article, World Fishing, August 1954, vol. 3, no. 8, pp. 290-293, illus., printed. John Trundell (Publishers) Ltd., Temple Chambers, Temple Avenue, London, E.C.4., England. This article (translated from an official Russian fishery publication) describes results of Russian experimental trawling for herring carried out in the North Sea during the summer of 1952 by the large Diesel trawlers Novorossiisk and Stalingrad. The special trawl nets were developed collectively by personnel of the Northern Ichthyological Institute Fish Catching Laboratory and the Murmansk Experimental Base, with the participation of the Manager of the Technical Fish Catching Laboratory of the Baltic Section of the All-Union Ichthyological Institute. The herring trawls are described in detail and are shown in several detailed drawings. The primary difference from the cod trawl is in the smaller meshes of the net and in the addition of one or two wooden kites attached with lines to the head rope to increase the vertical opening. For larger trawlers 115- and 150-foot trawls were constructed, and for medium trawlers 88-foot trawls were used. The 150-foot trawl proved to be the best size for the larger vessels. Size of mesh ranged from 22 mm. (.87 inch) in the cod end to 70 mm. (2 $\frac{3}{4}$  inches) in the wings. The number of floats on the herring trawl (15 on each wing) is almost 3 times less than on the cod trawl because herring fishing is done at 3 $\frac{1}{2}$ -4 knots and a larger number of floats would decrease the vertical opening by increasing resistance of the trawl in the water. By using two head-rope kites, it was possible to obtain a vertical trawl opening of about 13-17 feet. Shooting and hauling differs from cod trawling only in the additional handling of the kites. The trawler Novorossiisk was at sea 84 days, fished for 40 days and caught 205,000 pounds of herring and 3,800 pounds of cod, mackerel, and horse mackerel. A total of 405 tows were made, with the daily catch varying from 5,000-17,500 pounds of herring. After the crew became familiar with the gear, catches rose sharply. The authors feel that these tests prove the practicality of trawling for herring, and they recommend the continued exploration of new herring grounds with this type of gear.

--D. E. Powell

(Canada) Fisheries Statistics of Canada, 1953, (New Brunswick), 10 pp., printed, French and English, 25 Canadian cents. Dominion Bureau of Statistics, Ottawa, Canada, 1954. Consists of tables giving the production and landed and marketed values of the principal species of fish and shellfish landed in New Brunswick in 1951-53; quantity and value of manufactured fishery products for 1952-53; vessels used in the sea fisheries; capital equipment in the primary fisheries operations; and the number of persons engaged in the fisheries.

(Canada) Fisheries Statistics of Canada (Nova Scotia), 1953, 10 pp., printed, French and English, 25 Canadian cents. Dominion Bureau of Statistics, Ottawa, Canada, 1954. Consists of tables giving

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the production and landed and marketed values of the principal species of fish and shellfish landed in Nova Scotia 1951 to 1953; quantity and value of manufactured fishery products for 1952 and 1953; proportion of sea fish taken off-shore; vessels used in the sea fisheries; capital equipment in primary operations; and the number of persons engaged in the primary operations.

(Canada) Fisheries Statistics of Canada, 1953, (Ontario, Prairie Provinces and Northwest Territories), 10 pp., printed, French and English, 25 Canadian cents. Dominion Bureau of Statistics, Ottawa, Canada, 1954. Consists of tables giving the production and landed and marketed values of the principal species of inland fish landed in Ontario in 1951-53; capital equipment in the primary fisheries operations; and the number of persons engaged in the fisheries. Similar data are also given for the Prairie Provinces (Manitoba, Saskatchewan, and Alberta) and the Northwest Territories.

The Character and Significance of Sound Production Among Fishes of the Western North Atlantic, by Marie Poland Fish, Bulletin of the Bingham Oceanographic Collection, Peabody Museum of Natural History, Yale University, vol. XIV, article 3, 109 pp., printed, \$1.65, the Bingham Oceanographic Laboratory, New Haven, Conn., April 1954. Purposeful sound production in fish may be accomplished either by air bladder mechanisms or stridulatory mechanisms, and often by combinations of both. In all cases frequency characteristics are a key to the origin of the sound. Since most sonic fishes remain silent except when they respond to definite external or internal stimuli, individual experimentation is necessary to evaluate soundmaking habits. Accordingly 60 North Atlantic coastal fishes were segregated and, where possible, were subjected to a series of carefully controlled situations and stimulations. Of these, 27 species produced sounds of biological origin, 27 sounds of mechanical origin, and 6 no sounds at all. Each species which demonstrated biological sound ability has been considered separately; characteristic outputs and spectrum analysis figures are described, the stimulation required for sound production is discussed, anatomical data on the mechanisms involved are given, and the significance of the species as a soundmaker is estimated. Experimental results indicate that sound may be used voluntarily as a means of communication, particularly to implement breeding, as an expression of fright, as a measure of defense or offense, as a response to environmental changes, or as a means of orientation; and sometimes there is no apparent reason for the sound. Involuntary sound production occurs under certain other stimulation. Included also are known data concerning geographical, seasonal, vertical, and diurnal distribution as well as breeding habits, since these facts are essential in predicting the sounds produced by any species.

"Extra Bag of Meal from Ton of Herring," by Arne B. Holt, article, Norwegian American Commerce, vol. 17, no. 12, pp. 18-22, illus., printed,

December 1954. The Norwegian American Chamber of Commerce, Inc., 290 Madison Ave., New York 17, N. Y. Discusses the Norwegian herring industry's methods for recovery of stickwater from the fish meal and oil reduction process; the use of stickwater in poultry feeding experiments; and the storage and handling problems encountered for this bulky low-priced product. The new Norwegian method of processing "whole" fish meal, which includes the stickwater, is also reported upon. A report is included on experiments with the recovery of stickwater in the whale reduction industry.

The Farmer and the Fisherman, by Francis Joseph Weiss, article The American Farm Youth, vol. 20, no. 7, December 1954, pp. 14-17, printed, single copy 25 cents. American Farm Youth Publishing Co., Fairchild at Robinson, Danville, Illinois. Describes the relationship between farming and fishing. The author recommends intensified exploitation of the seas' resources to return to the land the mineral matters and other essentials contained below the surface of the earth's waters.

Fish Conservation Fundamentals, by R. W. Eschmeyer, 30 pp., illus., printed, single copies 25 cents, 10 or more copies 20 cents each (reprinted from Sport Fishing Institute Bulletin for January 1955 No. 38) Sport Fishing Institute, Bond Bldg., Washington 5, D. C., November 1954. This bulletin covers some of the major points in the evolution of fish conservation, eliminating the many qualifying statements which should normally be made if space permitted. The author points out "This shouldn't be regarded as 'the last word' on fish conservation, a field which is undergoing rapid change. It represents the observations of one professional fish conservationist, as of now." Broken down into 12 chapters, the bulletin covers the following: the general picture, stock, regulations, habitat improvement, population manipulation, creating more fishing waters, using the tools, commercial fishing, research, education, the value of angling, the modern program, the sportsman's role, and a reminder.

(FOA) Monthly Operations Report (Data as of July 31, 1954), 116 pp., illus., processed. Division of Statistics and Reports, Foreign Operations Administration, Washington 25, D. C. In addition to the usual tables and data, describes the Mutual Security Program for Fiscal Year 1955.

"The Hungry Anglerfish," by Bernard L. Gordon, article, Nature Magazine, vol. 47, no. 9, November 1954, pp. 469-470, illus., printed, single copy 50 cents. American Nature Association, 1214 16th St., NW., Washington 6, D. C.

(Norway) Statistisk Arbok for Norge, 1954 (Statistical Yearbook of Norway 1954), 385 pp., printed, in Norwegian with preface and table of contents in English. Central Bureau of Statistics of Norway, Oslo, Norway, 1954. Consists of tables on a wide range of subjects, including health and economics in Norway as well as a series of tables on the fisheries, sealing, and whaling.

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Pacific Marine Fisheries Commission Bulletin 3, 130 pp., illus., printed. Pacific Marine Fisheries Commission, 1400 S. W. Fifth Ave., Portland 1, Oregon, 1954. Contains the following papers on the Pacific Coast sablefish fisheries: "The Sablefish Fishery of California: I. History and Research," by J. B. Phillips; "II Catch Analysis," by J. B. Phillips and Seigi Imamura; "The Washington and Oregon Sablefish Fishery," by F. Heward Bell and Alonzo T. Pruter; "The Sablefish Fishery of British Columbia," by K. S. Ketchen and C. R. Forrester; "Preliminary Report on the Alaska Sablefish Fishery," by Quentin A. Edson; "A Racial Study of Pacific Coast Sablefish, *Anoplopoma fimbria*, Based on Meristic Counts," by J. B. Phillips, C. R. Clothier, and D. H. Fry, Jr.; "Results of Sablefish Tagging Experiments in Washington, Oregon, and California," by Edwin K. Holmberg and Walter G. Jones; "Age and Growth of the Oregon Sablefish *Anoplopoma fimbria*," by Alonzo T. Pruter; and Appendix "Pacific Coast Sablefish Catches by Region of Landing."

"Pacific Salmon for Atlantic Waters?" by W. E. Ricker, article, The Canadian Fish Culturist, Issue Sixteen, August 1954, pp. 6-14, printed. Department of Fisheries, Ottawa, Canada. A brief presentation of some of the well-known facts concerning the natural distribution of the Atlantic and Pacific salmons, earlier transplantations of Pacific salmon, difficulties of salmon transplantation and effects upon Atlantic fishes, increasing the supply of native Atlantic salmon, sport fishing, and the probable long-term effects of successful salmon introductions upon the general economy and standard of living of the eastern provinces of Canada.

Proceedings of the Gulf and Caribbean Fisheries Institute, Sixth Annual Session, Miami Beach, November 1953, 143 pp., illus., printed, \$1. The Gulf and Caribbean Fisheries Institute, The Marine Laboratory, University of Miami, Coral Gables, Florida, September 1954. Contains all of the papers presented at the sixth annual session (Miami Beach, 1953) of the Institute. At the Industry Session the papers presented dealt with the handling of shrimp aboard fishing vessels and at the dock, in the packing and freezing plant, in the breeding plant, and in the canning plant; and the organization of a quality-control program in a fishery plant. Papers for the Economic Session discussed the financing of fishing vessels: by commercial banks, in the Gulf States, through the ship-construction industry, and by financial institutions; and the financing of the Netherlands, Danish, and Swedish fishing fleets. Subjects of the papers presented at the Biological Session included: fisheries dynamics and the concept of maximum equilibrium catch; changing concepts in fishery research on the Great Lakes; half a century of fishery biology in Europe; and 50 years of progress in solving fishery problems. The Technical Session pre-

sented papers on the discovery of a new shrimp bank at Golfo de Batabano, Cuba; migrations of the common shrimp, *Penaeus setiferus*, along the South Atlantic and northern Gulf coasts of the United States; evaluation of five-pound packages of glazed and unglazed shrimp; comparison of objective tests for quality of fresh and frozen Gulf shrimp; the use of ultraviolet ("black") light for determining quality in iced shrimp; further experiments in holding of fresh shrimp in refrigerated sea water and ice; and freezing Gulf of Mexico shrimp at sea.

"Regional Bibliography for 1953," Contribution No. 127, printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 4, no. 2, pp. 160-181, June 1954.) The Marine Laboratory, University of Miami, Coral Gables, Fla. Includes papers, among others, on the following subjects: hydrography; physical properties; plankton; bottom fauna and flora; fish; marine fisheries; marine fishery investigations; marine mammals; shell-fisheries; and marine fouling and boring. The scope of the bibliography is limited in general to the area which includes the southeastern United States, the Gulf of Mexico, and the Caribbean, but papers of more general interest are listed in cases where they have some special significance to the area.

South Africa's Pilchard Industry in 1954, article, The South African Shipping News and Fishing Industry Review, vol. IX, no. 11, November 1954, pp. 55-113, illus., printed. S. A. Trade Newspapers (Pty.) Ltd., Ardis House, 16 Bree St., Cape Town, Union of South Africa. This is a detailed report of a comprehensive survey of the developments, status, and prospects of the Union of South Africa's pilchard industry. (Does not include the industry in South-West Africa.) The survey was conducted by the editor and his staff after an extended visit to the West Coast fishery. The report includes a summary of the history of the industry from a small beginning 10 short years earlier to an industry which is comprised of 200 fishing vessels harvesting 250,000 metric tons of fish a year; and 15 processing plants turning out £10 million (US\$28 million) worth of canned fish, fish meal, and fish oil. The Director of the South African Fishing Industry Research Institute discusses the technical developments in the industry. An interview with the managing director of the Fisheries Development Corporation covers the biological research on the fish shoals. A detailed report on the make-up and operation of the individual canneries and reduction plants completes the picture of the status on the South African pilchard industry in 1954. (With the maasbanker, or jack mackerel, pack doubling the pilchard pack in the 1954 season, the title "South Africa's Pilchard Industry" reads a little untrue . . . , points out the author.)

