



# RECENT FISHERY PUBLICATIONS

## FISH AND WILDLIFE SERVICE PUBLICATIONS

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- CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.  
 SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.  
 SSR.-FISH - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).  
 SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

- | Number   | Title   |
|----------|---|
| CFS-982  | - New Jersey Landings, February 1954, 2 pp.                           |
| CFS-986  | - Maine Landings, March 1954, 3 pp.                                   |
| CFS-987  | - Massachusetts Landings, March 1954, 8 pp.                           |
| CFS-988  | - New Jersey Landings, March 1954, 2 pp.                              |
| CFS-989  | - Mississippi Landings, March 1954, 2 pp.                             |
| CFS-991  | - Fish Meal and Oil, March 1954, 2 pp.                                |
| CFS-992  | - Texas Landings, March 1954, 3 pp.                                   |
| CFS-993  | - Alaska Fisheries, 1953, Annual Summary, 6 pp.                       |
| CFS-994  | - Frozen Fish Report, April 1954, Final, 8 pp.                        |
| CFS-1002 | - Chesapeake Fisheries, 1952 Annual Summary, 4 pp.                    |
| SL-17    | - Wholesale Dealers in Fishery Products, Alabama 1953 (revised) 3 pp. |

### Firms Canning Fishery Products, 1953 (Revised):

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| SL-101 | - Salmon, 3 pp.                         |
| SL-103 | - Tuna and Tuna-Like Fishes, 2 pp.      |
| SL-104 | - Mackerel, 1 p.                        |
| SL-105 | - Alewives and Alewife Roe, 1 p.        |
| SL-106 | - Shad or Shad Roe, 1 p.                |
| SL-107 | - Fish and Shellfish Specialties, 6 pp. |
| SL-108 | - Salmon Eggs for Bait, 1 p.            |
| SL-109 | - Caviar and Fish, 2 pp.                |
| SL-110 | - Oysters, 2 pp.                        |
| SL-111 | - Clam Products, 2 pp.                  |
| SL-112 | - Shrimp, 2 pp.                         |
| SL-113 | - Crab Meat, 2 pp.                      |
| SL-117 | - Pacific Sea Herring, 1 p.             |
| SL-119 | - Squid, 1 p.                           |
| SL-120 | - Anchovies, 1 p.                       |

### Firms Manufacturing Fishery Products, 1953 (Rev.):

- |              |   |
|--------------|---|
| SL-151       | - Meal, Scrap, Body, and Liver Oils, 8 pp.  |
| SL-153       | - Fish Glue and Isinglass, 1 p.   |
| SL-154       | - Seaweed Products, 1 p.  |
| SL-155       | - Marine Pearl-Shell Buttons, 1 p.  |
| SL-156       | - Pearl Essence, 1 p.   |
| SL-159       | - Fresh-Water Mussel-Shell Products, 1 p.   |
| Sep. No. 372 | - Freezing and Cold Storage of Pacific Northwest Fish and Shellfish, Part III--Storage Characteristics of Six Species of Oily Fish. |

SSR-Fish. No. 108 - Longline Fishing for Deep-Swimming Tunas in the Central Pacific, Janu-

ary-June 1952, by Garth I. Murphy and Richard S. Shomura, 35 p., illus., processed, August 1953. This is the second interim report on an investigation of the deep-swimming tuna resources of the central Pacific Ocean which was conducted by the Service's Pacific Oceanic Fishery Investigations during January to June 1952. It covers operational data, horizontal distribution of yellowfin tuna, catch of albacore, sizes of yellowfin and big-eyed tuna, sex ratios, Japanese fishing, vertical distribution of the catches, and catches on experimental gear.

SSR-Fish. No. 122 - Phosphorus Content of Waters Along the West Coast of Florida, by Herbert W. Graham, John M. Amison, and Kenneth T. Marvin, 48 pp., illus., processed, April 1954.

SSR-Fish. No. 123 - Pacific Sardine (Pilchard) Eggs and Larvae and Other Fish Larvae, Pacific Coast - 1952, by Elbert H. Ahlstrom, 78 pp., processed, April 1954. The results of quantitative sampling of eggs and larvae of the Pacific sardine or pilchard (*Sardinops caerulea*) off the west coast of California and Baja California during 1952 are given in this report, the third in a continuing yearly series. Also included, are records of the larvae of five other species: northern anchovy (*Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), hake (*Merluccius productus*), Pacific mackerel (*Pneumatophorus diego*), and rockfish (*Sebastes* sp.).

SSR-Fish. No. 125 - Zooplankton Volumes Off the Pacific Coast, 1949-50, 56 pp., processed, April 1954. This is the third report on zooplankton volumes off the Pacific Coast. The first report covering zooplankton volumes was for 1951, and the second report for 1952.

Annual Report of the Director Fish and Wildlife Service to the Secretary of the Interior, Fiscal Year Ended June 30, 1953 (Reprinted from the Annual Report of the Secretary of the Interior), 34 pp., printed. Summarizes the various activities of the Service. Specifically discussed are: utilization of fishery resources (describes the activities of the Branch of Commercial Fisheries); administration of Alaska fisheries; Pribilof Islands fur-seal industry; maintenance of inland fisheries; research in fishery biology (coastal, inland, marine, and shellfish fisheries); Federal aid to state projects for the restoration of fish and wildlife; river basin development and wildlife needs; international cooperation in conservation (international conservation agreements and technical cooperation); and other activities.

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Causes of Fluctuations in Abundance of Connecticut River Shad, by Reynold A. Fredin, Fishery Bulletin 88 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 54), 16 pp., illus., print-

ed, 15 cents, 1954. This paper presents a method of analyzing catch, fishing effort, and tagging data which was used to estimate the size of the shad runs in the Connecticut River for each year in the period 1935-51. Using these estimates, further analysis indicated that more than 80 percent of the fluctuations in the size of these runs can be explained by changes in the size of the escapements from the fishery. An estimate of the mortality outside the river acting on a group of adult shad in the period between the 1946 and 1947 fishing seasons indicates that such mortality may also exert an effect on the size of the runs entering the river. Investigation of the Connecticut River shad fishery is part of a six-year coastwise study of the Atlantic shad (*Alosa sapidissima*) sponsored by the Atlantic States Marine Fisheries Commission. Research conducted by the Service, with the cooperation of the various state agencies along the Atlantic coast, has been undertaken to determine the factors affecting the abundance of shad and to recommend measures for restoring the species to its former abundance.

Fresh and Frozen Fish Buying Manual, Circular 20, 50 pp., printed, 25 cents, 1954. A handy guide for food purchasers and dietitians. This booklet is a revised version of the Fresh and Frozen Fishery Products Reference Manual which proved so popular that more than 65,000 copies were distributed. The forms in which fish and shellfish can be bought are described and illustrated. Seven different cuts for fish and four different market forms for shellfish are explained. Containers for fresh, frozen, and shellfish are listed according to types and net weights. The reader is informed on what to look for in the purchasing of whole and drawn fish, fillets and steaks, frozen fish, and the principal species of shellfish. Under the heading How Much to Buy, servings per person and per 100 persons are listed for fillets, steaks, fish sticks, dressed fish, and whole (or round) fish. Under the same heading, servings per 6 persons and per 100 persons are listed for the chief species of shellfish. Other subjects covered are: handling, storing, cleaning, dressing, filleting, food value, edible portions, fish cookery, species names, producing areas, market sizes, fat-or-lean categories, classifications and specifications (market and Government), and seasonal supply variations.

Studies of Georges Bank Haddock. Part II: Prediction of the Catch, by William F. Royce and Howard A. Schuck, Fishery Bulletin 90 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 56), 9 pp., illus., printed, 10 cents, 1954. This is the second paper of a series reporting the results of a study of Georges Bank haddock (*Melanogrammus aeglefinus*). Fluctuations in production have always been a cause of concern and have contributed to crises in the fishing industry. Some degree of correction of these fluctuations through proper methods of conservation may be possible. Meanwhile, a reliable prediction of the possible catch is of use to all branches of the fishing industry concerned with haddock. According to the authors, "A prediction of the catch of the Georges Bank haddock is possible because haddock have rather regular habits and because there are statistics

on the haddock stocks. Analysis of the relation between catch and amount of fishing provides a statement of a relation that explains 83 percent of the variation in the catch of haddock over a period of 20 years. The catch depends primarily on the number of fish in year classes when they first enter the fishery, and on the amount of fishing. By use of formulas developed, predictions of catch were made for 1951 and 1952 that deviated 2.1 percent and 1.3 percent from actual landings in those years. These predictions are closer than can be expected in the long run. With a coefficient of variation of 8 percent, predictions should be within 8 percent of the actual catch about two-thirds of the time, and within twice that about 19 times out of 20."

## MISCELLANEOUS PUBLICATIONS

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"About Eel Racks," by Nick Drahos, article, The New York State Conservationist, December-January 1953-54, vol. 8, no. 3, pp. 20-21, illus., printed. New York State Conservation Department, Arcade Bldg., Albany 1, N. Y. Describes the operation of eel racks in New York waters. Each summer during July, long V-shaped walls of stone are built across some of New York's streams. At the point of the V, a long wooden contraption on stilts is built, the body of which is composed of a series of stair-like sections of slats. Each section is called a fall. As the eels come down the river they are guided by the man-made walls to the rack itself. Here the current forces them over the falls and strands them in the one fall which has the least amount of water. The eels are held captive here; they can't go forward because there is no water ahead, nor can they go back upstream because the slats of each fall project like a shelf over them.

"Australian Tunas," a series of articles, Fisheries Newsletter, February 1954, vol. 13, no. 2, pp. 1-23, illus., printed. Commonwealth Director of Fisheries, Department of Commerce and Agriculture, 58 Margaret Street, Sydney, Australia. In an introduction to this special tuna issue of the Fisheries Newsletter, J. G. Crawford, Secretary for Commerce and Agriculture, points out that much has been learned about Australian tunas in the last several years. Valuable information was obtained from one series of commercial fishing trials, for which financial success was guaranteed by the Commonwealth Government. The establishment of a firm tuna industry is presently being considered by both Australian and American interests. The Department is anxious to do all it can to insure that the fishing industry contributes to the program for increased food production. The tuna industry, which has no marketing problem, seems to offer good possibilities for expansion. The Secretary extends

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appreciation to officers of the Fisheries Division of the Commonwealth Scientific and Industrial Research Organization, who contributed much of the material for the tuna articles.

The first article, on distribution and identification, lists eleven species of tuna occurring in Australian waters in order of their present commercial importance: southern bluefin tuna (*Thunnus thynnus maccoyii*), striped tuna (*Katsuwonus pelamis*), northern bluefin tuna (*Kishinoella tonggol*), yellowfin tuna (*Neothunnus macropterus*), albacore (*Thunnus germon*), Australian bonito (*Sarda chiliensis australis*), mackerel tuna (*Euthynnus alletteratus*), frigate mackerel (*Auxis thazard*), leaping bonito (*Cybiosarda elegans*), oriental bonito (*Sarda orientalis*), and dogtooth tuna (*Gymnosarda nuda*). Identifying characteristics for each species are included, along with a drawing of a typical tuna from a previous report by Dr. D. L. Serventy of the C. S. I. R. O. Division of Fisheries. In discussing distribution the coastline of Australia is divided into six geographical areas, and the species occurring in each of these areas are listed together with the fishing seasons. Surveys in many of the areas are incomplete, and much remains to be learned of abundance and seasonal availability.

The second article deals with a survey of South Australian waters. This is one of the most promising areas for tuna-fishery development. Observations made at sea by officers of the C. S. I. R. O. Division of Fisheries since 1939 have thrown considerable light on tuna distribution and occurrence in this area. The southern bluefin is the most valuable and predominant species in South Australian waters, but recently two other species have been taken there. F. R. V. Derwent Hunter, in the autumn of 1953, collected several specimens of the striped tuna and another species closely resembling the albacore (but which may turn out to be different). The striped tuna were caught in the Great Australian Bight, offshore about 120 miles southwest of Ceduna. This important discovery makes the striped tuna the only species on record from all the Australian states. The albacore-like species was taken about 50 miles south of Cape Wiles. Accounts of tuna surveys by research vessels from 1939 to 1953 are included. The results indicate that tuna are numerous in the eastern waters of the State in summer and to some extent in autumn and winter. In western waters, they appear to be more numerous in autumn. However, fishermen with local knowledge are invited to draw their own conclusions. Specimens of southern bluefin taken in South Australian waters by trolling ranged from less than 10 pounds to over 90 pounds. Larger specimens have been caught by sportsmen or found stranded. Most have been caught by trolling, a few with purse seines. One trial with a live-bait boat has been made, with unreported results. Both pilchards and anchovies, the former quite common, are found in South Australian waters.

The third article concerns the history of the tuna fishery in Australia. Mr. Stanley Fowler,

a Principal Research Officer with C. S. I. R. O., began surveys of pelagic fish schools by plane in 1936. Previous to that, Australian fishermen had reported seeing such schools at times, but no definite knowledge existed of the occurrence and extent of the various species of fish. Until 1948, Fowler surveyed almost the entire coastline of Australia and proved the existence of vast shoals of mackerel, tuna, pilchard, and salmon. One report in 1945 described "many thousands of shoals extending almost continuously for about 100 miles." Canneries were built, beginning in 1937, but depended primarily on salmon (not like North American salmon) and/or barracouta. In 1949 fishermen of New South Wales caught about 1,000 tons of choice southern bluefin tuna from small trolling boats. Samples of the frozen and canned product were given high praise by tuna experts in Hawaii, British Columbia, and California. In October 1950 a Government-assisted tuna clipper caught 248,830 pounds of tuna in 70 fishing days. Not much development of the tuna fishery has taken place since early 1951, due partly to high prices which the fishermen have received for other species. It seems fairly certain that a large-scale tuna industry requires the use of modern tuna clippers which can stay at sea and follow the fish. Both Australian and American interests are at present investigating this possibility. The Commonwealth Director of Fisheries, G. P. O. Box 2595, Sydney, has prepared detailed instructions on rigging for tuna trolling, live bait, and long-line fishing, a few copies of which are still available to interested parties free upon request.

Some economic aspects of the Australian tuna fishery are discussed in the fourth article, by F. J. Kearns, Senior Research Officer of the Commonwealth Fisheries Office. He points out that there exists a feeling that something important will happen soon in tuna development. He makes no claim to know what is retarding the tuna industry in Australia, but presents some economic aspects of the matter. Factors affecting fishery development are similar to those in other countries. It can be expected that ordinary investment capital will not be plentiful. Development of the tuna industry will be by stages, primarily on the initiative of owner-operators. It is probable that development will closely follow that which took place in the California tuna industry, with small local boats at first and with expansion to larger vessels fishing the year-round at a later date. Live-bait fishing with pole and line is assumed to be the basis for any large-scale development, with smaller trollers and netters working on tuna seasonally and in local waters. The author believes that year-round fishing in Australia will be found closer to home waters than in California. The most economical size of the clippers cannot be determined until the necessary cruising range for the fishery is established. A system of share payments, similar to that in effect in the California tuna fishery, would probably be necessary. However, because of the probable shorter trips in Australian waters, the crews may fish for a smaller percentage, still faring quite favorably from the wage standpoint. No

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market problem exists with the present rate of production, though the costs of producing canned tuna in Australia are probably the highest for any country in the world other than the United States. World markets are open, and domestic consumption is expanding rapidly. Australian tuna boats operating in northern waters could, if necessary, land their catch in American Samoa as an alternative to returning to home port after each trip. Costs of tuna canning may be reduced in Australia by increasing production, introduction of modern mechanized equipment, and by utilization of byproducts on an expanded scale.

--D. E. Powell

A Bibliography of the Lobster and the Spiny Lobster (Families Homaridae and Palinuridae), by C. E. Dawson, 89 pp., printed. Florida State Board of Conservation, Tallahassee, Fla., 1954. A bibliography which will help those engaged in the biological study of the lobster and the spiny lobster.

(California) The Commercial Fish Catch of California For the Year 1952, with Proportion of King and Silver Salmon in California's 1952 Landings, Fish Bulletin 95, 70 pp., illus., printed. California State Fisheries Laboratory, Terminal Island Station, San Pedro, Calif., 1954. Contains data on the landings and value of commercial fish and shellfish, and shipments into California during 1952; number of licensed commercial fishermen and registered fishing boats in the State; number of fish taken by anglers fishing from licensed party boats; and the recorded catch of live bait in southern California made by vessels supplying the party boat fleet. Also contains an article on "Proportion of King and Silver Salmon in California's 1952 Landings," by Donald H. Fry, Jr., and Eldon P. Hughes. A list of common and scientific names of California fishes, crustaceans, and mollusks is included.

(Canada) Fisheries Statistics of Canada, 1951, 54 pp. (tables), printed in English and French, C\$1.00. Dominion Bureau of Statistics, Ottawa, Canada, 1954. A review of the fishery statistics of Canada for 1950 and 1951 prepared in collaboration with Dominion and Provincial Fisheries Departments. It includes data on the quantity and value of the catch of fishery products for Canada as a whole (excluding Newfoundland); production of fish oils and fish meal; production of frozen, salted, pickled, vinegar-cured, and canned fish; shellfish production; employment in fish-processing establishments; and value of exports and imports of fishery products. Also contains data on the total value of the fisheries, by province, for 1949-1951; Canada's lobster pack, by province, for 1942-51; and fishing bounties paid to vessels and boats in 1951.

(Canada) Twenty-third Annual Report of the Department of Fisheries, 1952-53, 71 pp., printed. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1953. Summarizes the prin-

cipal activities of the Department of Fisheries' Conservation and Development Service, Inspection and Consumer Service, Markets and Economics Service, Information and Educational Service, Fisheries Prices Support Board, and the Fisheries Research Board. Describes the activities of the International Commissions. Also discusses the fishing industry in British Columbia, the Maritime Provinces, Quebec, Newfoundland, and the fresh-water fishery. Includes statistics of the fisheries and financial statements of the Department of Fisheries for the fiscal year 1952/53.

A Contribution to the Life History and Biology of the Sailfish, ISTIOPHORUS AMERICANUS Cuv. and Val., in Florida Waters, by Gilbert L. Voss, Contribution No. 116 (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 3, no. 3, pp. 206-240, December 1953), 35 pp., illus., printed. Marine Laboratory, University of Miami, Coral Gables, Fla. A technical report to the National Geographic Society and to the Florida State Board of Conservation describing the results obtained from a study of the biology of the sailfish in Florida waters.

(Delaware) Annual Report of the Delaware Commission of Shell Fisheries of the State of Delaware for the Fiscal Year July 1, 1952 to June 30, 1953, 7 pp., processed. The Delaware Commission of Shell Fisheries, Dover, Del., 1953. Describes the activities of the Delaware Commission of Shell Fisheries for the fiscal year ending June 30, 1953. Also includes a statement of revenue receipts and a financial statement for the same period. Amounts of seed oysters harvested and oyster shells planted in Delaware are also given.

Directory of Hydrobiological Laboratories and Personnel in North America, edited by Robert W. Hiatt, 333 pp., illus., printed, \$3.75. Prepared under the auspices of the Advisory Committee on Hydrobiology to the Office of Naval Research. Published by the University of Hawaii Press, Honolulu 14, Hawaii. This up-to-date directory of hydrobiological laboratories in North America was compiled because of the growing interest in hydrobiology and the resulting increase in facilities for education and research. Listing 187 laboratories with provisions for instruction and research and scope of activities, this directory is designed to be useful not only to research scholars but to young scientists in training and to visiting investigators as well. The address, senior officer, institutional affiliation, objectives, scope of activities, season of operation, and environments stressed are given for each laboratory. In addition, major research facilities, capital equipment, and provisions for publications are indicated as well as descriptions of accommodations available, instructional program, teaching facilities and scientific staff. Biographical sketches of 1,300 personnel give institutional affiliation, mailing address, field of specialization, current research project, and field experience by geographical region. An important

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part of the book is the cross-reference index which lists each laboratory under its official name, the sponsoring agency, and the area in which it is located. For convenience, data for all laboratories are broken down into inland laboratories (fresh-water) and coastal laboratories (marine), and finally segregated by geographical area. The preface points out: "There is no up-to-date synthesis of hydrobiological facilities available for education and research. Interest in and development of hydrobiological work have increased greatly since World War II. These have been stimulated by government-sponsored programs to secure information on the development and management of aquatic resources, both fresh-water and marine, and also by the impetus given general oceanographic investigations. Such interest and support have culminated in the establishment of new laboratories and the expansion of existing ones. This has increased the need for trained technical personnel and for new and expanded programs of instruction. The necessity to take stock of this development now and to educate interested persons as to the extent of present facilities and opportunities keynote this volume." U. S. Fish and Wildlife Service fresh-water and marine laboratories are listed also.

Don't Cuss Carp--Use 'Em, 35 pp., illus., printed, 25 cents. The Ohio Division of Wildlife, Department of Natural Resources, 1500 Dublin Road, Columbus, Ohio. Carp, about which so much controversy exists, is becoming increasingly more prominent in the fresh waters of this country. In many areas it is prized as a game and food fish, whereas in others it is considered a pest. In many of the latter areas professional fishermen are hired to rid the waters of this fish. Yet, it represents a species of fish that, if properly prepared, can represent a valuable addition to this nation's food resources. Since most of the unpopularity of this widely found fish is based on a lack of understanding of how to prepare it for the table, this booklet on carp is particularly timely and interesting. Among the subjects discussed are: how to catch, fillet, smoke, can, and cook carp--including some recipes.

Fish and Shellfish, by May E. Foley, Extension Leaflet No. 157 (Revised February 1954), 12 pp., illus., printed. Extension Service, University of Massachusetts, Amherst, Mass. Contains recipes for fish and shellfish and a number of recipes for sauces, as well as short discussions on supply, nutritive value, buying fish, storing fresh and frozen fish, rules for cooking, and methods of cooking.

(Gold Coast) Report of the Fisheries Department for the Year 1952-53, by F. R. Johnson, 10 pp., illus., printed, 2s. (28 U. S. cents). Government Printing Department, Accra, Gold Coast, 1954. This report, which covers the Fisheries Department's financial year from April 1, 1952, to March 31, 1953, describes the following activities: (1) continued experiments in the use of motor surfboats as fishing vessels, for trawling and in the drift-net fishery for herring; (2) recording of catches of beach seines in the Keta

District; (3) building of motor surfboats in the Department's yard at Sekondi; (4) recording of seine catches in the Volta River; (5) utilization of streams, pools, and reservoirs for fishing in the Northern Territories; (6) study of hazards to health associated with such waters; (7) provisions for instruction in methods of river fishing; and (8) further studies in the preservation of fish.

(International Commission for the Northwest Atlantic Fisheries) Statistical Bulletin for the Year 1952, vol. 2, 55 pp., and map, illus., printed. International Commission for the Northwest Atlantic Fisheries, Halifax, N. S., Canada, 1954. This bulletin is divided into three parts as follows: Part 1 is a descriptive summary of the development of fishing by the ten countries in the Northwest Atlantic. It includes figures on landings and, where possible, tables relating landings to fishing-effort data. The figures on quantities landed cover the years for which data are available. In a few cases a certain number of earlier years have been omitted. Fishing-effort data and corresponding yields are given for all the years for which there are statistics. Part 2 is devoted entirely to the 1952 statistics on landings, fishing effort, and corresponding yield. Part 3 contains revisions and additions to vol. 1, including data not available at the time vol. 1 was published. A map showing the new subdivisions of the Convention subareas is also included.

Irritant Gases Associated with Red Tide, by Robert M. Ingle, Special Service Bulletin No. 9, 5 pp., processed. Marine Laboratory, University of Miami, Coral Gables, Fla., March 1954. Facts are listed which are pertinent to the question of the origin of irritant gases commonly associated with the red tide.

"Newfoundland's Changing Fleet," article, Trade News, March 1954, vol. 6, no. 9, pp. 8-10, illus., printed. Department of Fisheries, Ottawa, Canada. The Veteran Explorer, newest of Newfoundland's fleet of 40- to 60-foot fishing vessels, is featured in this article to illustrate the evolution that has been taking place in Newfoundland's fisheries during the present generation, a transition that has seen a small, but growing, number of fishermen break with tradition in favor of more modern fishing methods. When fully rigged, the Veteran Explorer will be able to engage in purse seining for herring, long-lining, Danish seining, trawling, and swordfishing. Other developments in Newfoundland's fisheries are also discussed.

"Newfoundland Seal Hunt," by Mark Ronayne, article, Trade News, March 1954, vol. 6, no. 9, pp. 3-5, 18, illus., printed. Department of Fisheries, Ottawa, Canada. A brief description of the past and present Newfoundland seal fishery, which centers around two species of seals, the harp or "saddleback" (*Phoca groenlandica*) and the hood or "bladdernose" (*Cystophora cristata*). Their homes are within the Arctic Circle; the hoods on the east side of Greenland and the harps on the east side of Baffin Bay with a few on the west side of Greenland.

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"Night Life in the Gulf Stream," by Paul A. Zahl, article, The National Geographic Magazine, March 1954, vol. CV, no. 3, pp. 391-418, illus., printed, 65 cents an issue. National Geographic Society, Washington 6, D. C. Describes nocturnal studies of the marine life in the Gulf Stream waters between Bimini and the Florida Keys. To lure the sea creatures, the author used the old trick of hanging a light in or above the water, drawing marine life like a flame attracting moths. Colored pictures accompanying this article depict some of the weird and bizarre creatures attracted by the lure. They also show some equally strange forms collected near the shores and reefs of the Bimini Islands during daylight hours.

"The Oyster and the Brothers Flower," by Albert W. Bromley, article, The New York State Conservationist, December-January 1953-54, vol. 8, no. 3, pp. 4-9, illus., printed. New York State Conservation Department, Arcade Bldg., Albany 1, N. Y. Describes briefly the life history of the oyster and the nearly extinct and almost forgotten oyster beds of the Hudson River. Early in 1951 a private enterprise leased the old oyster grounds on the bottom of the Hudson River, and this article tells of the progress made in developing control methods for oyster parasites, predators, and diseases, and of the progress made in oyster-culture techniques.

"Philippine Fish Culture," by Wallace E. McIntyre, article, The Scientific Monthly, February 1954, vol. LXXVIII, no. 2, pp. 86-93, illus., printed, 75 cents an issue. The Scientific Monthly, 1515 Massachusetts Avenue, NW, Washington 5, D. C. Describes the development and improvement of fish culture in the Philippines. The author states that "If all the unutilized waters could be used in fish production, a sufficient supply of protein food could undoubtedly be obtained for the entire population. It is toward this goal that the Bureau of Fisheries and other government agencies of the Philippines have been working, by establishing model fish culture centers, introducing new fish types, training fishermen, financing fish pond construction, leasing public lands, carrying out research in fishery problems, and similar activities." This article describes in detail the rearing of the bangos or milkfish, which is the only fish produced in Philippine fish ponds in important numbers. It also discusses fresh-water fish culture, oyster culture, and the utilization of "kapis" or windowpane shells. (The windowpane shell is a pearl oyster, *Placuna placenta*, whose entire shell, including the meat, is about one centimeter in thickness.)

The Philippine Journal of Fisheries, January-June 1951, vol. 1, no. 1, 106 pp., illus., printed. Department of Agriculture and Natural Resources, Manila, Republic of the Philippines. This report, the first of a series to be published semiannually, contains the following papers: "The Preparation and Management of Bangos Fishpond Nursery in the Philippines;" "The Cultivation and Biology of Oysters at Bacoor Bay, Luzon;" "The Cultivation of Supgo (*Penaeus*

*monodon* Fabricius) in the Philippines;" "The Young of Some Fishes of Luzon;" "A Guide to the Recognition of Fishes Caught with the Use of Explosives;" and "Outlook for Industrialization of the Philippine Fisheries."

The Pineal Apparatus of Tunas and Related Scombrid Fishes as a Possible Light Receptor Controlling Phototactic Movements, by Luis Rene Rivas, Contribution No. 114 (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 3, no. 3, pp. 168-180, December 1953), 13 pp., illus., printed. Marine Laboratory, University of Miami, Coral Gables, Fla. The evidence presented in this study suggests that tunas, and other related scombrid fishes, react to light by means of a pineal apparatus.

A Preliminary Review of Salmon Fishing Trends on Inner Puget Sound, by William A. Smoker, Research Bulletin No. 2, 55 pp., illus., printed. Washington State Department of Fisheries, 1308 Smith Tower, Seattle 4, Wash., March 1954. Describes briefly the life history of the five species of Pacific salmon found in inside Puget Sound. Discusses trends in Puget Sound commercial salmon catches, trends of commercial landings by areas inside Initiative 77 line, catchability of silver salmon, and stream limitations on silver abundance. Many graphs, with brief explanations and supporting tables, are presented for those who are interested in Puget Sound salmon fishing statistics. Emphasis is on landings from 1935 to 1952 in the inner Sound. Commercial 1953 landings became available too late to incorporate in the graphs but are included in the tables.

Revue des Travaux de l'Office Scientifique et Technique des Peches Maritimes, Tome XVII, Fascicules 3 et 4, 92 pp., illus., printed in French. Office Scientifique et Technique des Peches Maritimes, 59 Avenue Raymond-Poincare, Paris XVI, France, December 1952. Describes the work of the bureau indicated. It contains articles on canning of tuna, fish canning, preserving the quality of fresh fish, and refrigeration and freezing of fish.

"The Scientific Arm... of the Federal Department of Fisheries is the Fisheries Research Board of Canada," article, Trade News, vol. 6, no. 7, January 1954, pp. 3-8, illus., printed. Director of Information and Educational Service, Department of Fisheries, Ottawa, Canada. As the scientific branch of the Canadian Department of Fisheries, the Fisheries Research Board of Canada conducts investigations to provide for the best possible management of the marine and fresh-water resources, explores for new fishing grounds, and conducts experiments to improve methods of catching, handling, and processing so that top-quality fishery products can be delivered by the industry to consumers at home and abroad. Significant advances have been and are being made by the Fisheries Research Board of Canada in solving many of the problems affecting Canada's fisheries from Newfoundland to British Columbia. Many of the Board's investigations are of a continuing nature, and some idea of the scope of the Board's

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work may be obtained from some phases of the stations' investigations described in this article.

Sea Pests--Poisonous or Harmful Sea Life of Florida and the West Indies, by Craig Phillips and Winfield H. Brady, 78 pp., illus., printed, 75 cents. The Marine Laboratory, University of Miami, Coral Gables, Fla., September 1953. The purpose of this bulletin is to provide a factual account of the many diverse types of sea life which may be a nuisance to bathers in tropical Atlantic waters. The authors state that: "Very few of them are likely to be met with frequently. . . It is hoped that the descriptions given may serve not only to satisfy the great curiosity that the public has about such matters, but also to allay unfounded fears and to draw attention to the few really dangerous creatures." The toxicity and nature of poisons vary greatly among the different species of marine animals. The poison of any single species may vary considerably in strength from place to place and alter with time of the year, age, and other factors. Poison glands for protection and the procurement of foods are to be found in a large number of marine animals, particularly among the lower orders. However, because of the small size of most of these, relatively few are dangerous to man. Among those which are dangerous are included certain jellyfishes, the Portuguese man-of-war, and the scorpion fishes. The meat of some marine animals may be poisonous when eaten, and certain of the larger sharks and the barracuda are known to attack swimmers on rare occasions. Dangerous marine animals may thus be divided into four general categories, which are discussed in separate chapters, as follows: (1) vicious or attacking sea animals; (2) venomous, stinging, or irritating sea animals; (3) sea animals poisonous when eaten; and (4) skin poisoning through contact with fisheries products and gear. Separate bibliographies are given for each chapter.

Studies, 1952, From the Stations of the Fisheries Research Board of Canada, illus., printed, Fisheries Research Board of Canada, Ottawa, Canada. Contains the following reprints of articles published by Board scientists other than in the Board's publications: "Results of the West Coast of Vancouver Island Herring Investigation," by J. C. Stevenson, A. S. Hourston, and J. A. Lanigan; "Contributions to the Life-History of the Sockeye Salmon (No. 36)," by D. R. Foskett; "The Ungava Bay Problem," by M. J. Dunbar; "Precision Semimicro Hydrogenation Apparatus," by F. A. Vandenheuvel; "Partition Chromatography of Aliphatic Acids," by F. A. Vandenheuvel and E. R. Hayes; "Recent Advances in Various Technological Aspects of Handling Fish and Fish Products," by H. L. A. Tarr; "Wandering Versus Homing in Salmon," by A. G. Huntsman; "Rose of British Columbia in the North American Recreation and Wildlife Picture," by Ferris Neave; "Chromatographic Separation and Microbiological Assay of Indigenous and Added Cobalamins in Crude Animal Protein Materials," by H. L. A. Tarr; "Greenland Cod (*Gadus ogac*) in Miramichi Bay,

New Brunswick," by R. A. McKenzie; "Experimental Preservation of Flesh Foods with Antibiotics," by H. L. A. Tarr, B. A. Southcott, and H. M. Bissett; "The Jacket Principle in Canadian Cold Storage," by O. C. Young; "'Even-Year' and 'Odd-Year' Pink Salmon Populations," by Ferris Neave; "Numerical Relations Between Abundance of Predators and Survival of Prey," by W. E. Ricker; and "Fertilization and Predator Control to Improve Trout Production in Crecy Lake, New Brunswick," by M. W. Smith.

Toxic Effects of Sulfite Waste Liquor on Young Salmon, by R. W. Williams, E. M. Mains, W. E. Eldridge, J. E. Lasater, and edited by G. A. Holland, Research Bulletin No. 1, 111 pp., illus., printed. Washington Department of Fisheries, 1308 Smith Tower, Seattle, Wash., December 1953. Describes a study conducted by the Washington Department of Fisheries in cooperation with the Washington Pollution Control Commission, the United States Public Health Service, and the Pacific Marine Fisheries Commission to determine the effects of certain waste materials from industrial operations on fish and other aquatic organisms common to the State of Washington region. This report contains initial findings of the study involving the spent cooking liquors from sulfite pulping operations and their effect on the various species of salmon.

A Study of Populations of the Anchoveta, CETEN-*GRAULIS MYSTICETUS*, Based on Meristic Characters, by Gerald V. Howard, Inter-American Tropical Tuna Commission Bulletin, vol. 1, no. 1, 24 pp., illus., printed in English and summary in Spanish. Inter-American Tropical Tuna Commission, c/o Scripps Institution of Oceanography, La Jolla, Calif., 1954. This study was undertaken to determine whether meristic characters indicate that more than one major population of anchovetas occurs in the range of the species from Mexico to Peru. Interest in this species lies in the fact that it is the principal bait fish used to catch yellowfin and skipjack tunas in the eastern Pacific.

(Uganda) Annual Report of the Game and Fisheries Department (For the Year Ended 31st December, 1952), 119 pp., illus., printed, Shs. 4/75. The Government Printer, Entebbe, Uganda, 1953. Includes a section on the fisheries of the Uganda waters of Lake Victoria; Lake Albert (including the Albert Nile and associated fisheries); Lake Kyoga and waters of eastern Uganda; and Lakes George, Edward, and waters of western Uganda. Tables give the 1952 catch of fishery products by months and species for Lake George and by species for Lake Edward and Kazinga Channel; and quantities and values of dried (salted) and smoked fish exported in 1952 from Lakes Edward, George, and associated fisheries. The Uganda Fish Marketing Corporation, prices of dried fish, the East African Fisheries Research Organization, the Symposium on African Hydrobiology and Inland Fisheries, water pollution, fish farming, boat building, the quantities and values of fishing nets imported, and angling are some of the other subjects covered. The other sections of the report deal with game.

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(United Nations) Statistical Yearbook (Annuaire Statistique), 1953 (Fifth Issue--Cinquieme Annee), 578 pp., printed in English and French, \$6.00 paper bound. Prepared by the Statistical Office of the United Nations, Department of Economic Affairs, New York, N. Y., 1953. (Sold by the Columbia University Press, 2960 Broadway, New York 27, N. Y.) Prepared with the cooperation of national statistical offices and with the assistance of the specialized agencies of the United Nations and certain other intergovernmental bodies, this book is a compilation of tables giving all available statistics on world population, manpower, agriculture, forestry, fishing (fish landings by country), industrial production, mining and quarrying, manufacturing (including canned fish production 1938, 1947-52; salted cod production, 1933-1952), construction, electricity and gas, consumption, transport, communications, internal trade, external trade, balance of payments, wages and prices, national income, finance, public finance, social statistics, and education and culture. Statistics are by area and by country and include data received up to the end of November 1953. Most of them cover the period 1933 (or 1929) through 1952; some have been brought up to the first half of 1953. All the tables which appeared in the preceding issue have been maintained in the present volume with a few exceptions. A number of tables have been completely recast or extended in scope, and amongst these is the table on whaling which has been expanded to show the principal species of whales caught and the whaling activities of a considerably increased number of countries; also a new section on whaling equipment has been added. This is an extensive reference book supplying general over-all data on all phases of human endeavor. The book contains both an alphabetical subject index and an alphabetical country index.

United States Exports of Domestic and Foreign Merchandise (Commodity by Country of Destination), Calendar Year 1953, Report No. FT 410, processed, Part I, 141 pp., 70 cents; Part II, 237 pp., \$1.25. Bureau of the Census, U. S. Department of Commerce, Washington, D. C., May 1954. (For sale by the Superintendent of Documents, Washington 25, D. C.) In general, the statistics contained in this report are a complete record of the physical movement of merchandise out of the United States to foreign countries (except for in-transit shipments), but there are some exclusions of items of relatively small importance, such as low-valued or non-commercial shipments by mail, gifts valued less than \$100, samples, etc. Both quantity and value of exports are reported. Included are exports of fishery products and byproducts. Part I covers Group 00-Animals and Animal Products, Edible; Group 0-Animal Products, Inedible; and Groups 1, 2, 3, 4, and 5. Part II covers Groups 6-9, Metals, Machinery and Vehicles, Chemicals, and Miscellaneous, respectively.

United States Imports of Merchandise for Consumption Calendar Year 1953 (Commodity by

Country of Origin), Report No. FT 110, 171 pp., processed, \$1.00. Bureau of the Census, U. S. Department of Commerce, Washington 25, D. C. (For sale by the Superintendent of Documents, Washington 25, D. C.) This publication contains a compilation of the United States imports of all commodities (including fishery products) for consumption. Information presented for each commodity includes country from which shipped, quantity, and value.

The Western End of Lake Erie and its Ecology, by Thomas H. Langlois, 479 pp., illus., printed, \$10.00, J. W. Edwards, Publisher, Inc., Ann Arbor, Michigan, 1954.

Dr. Langlois, for many years Chief of the Bureau of Fish Propagation and Management for the State of Ohio, and more recently Director of the Franz Stone Institute of Hydrobiology of Ohio State University, at Put-in-Bay, has produced a book with an engaging title containing much provocative material. He has also put in one place the knowledge, condensed from many literature sources, of the biota (from bacteria through fishes) of an important body of water.

Structurally the book has serious faults. The illustrations are incredibly poor and the format and organization are on the dull side. I am inclined to blame the publisher in part for these shortcomings. But I think the author himself must answer for contradictory statements, for inconsistencies between text and tables (see the cisco catch, pages 290-291), for calling the same fish Leucichthys artedi albus on page 234 and Leucichthys artedi artedi on page 271, for not crosschecking text references to be sure they all appear in the bibliography (they don't--Hile, 1952, for instance, on page 290), for long passages on fishing techniques, which may be interesting but scarcely develop the theme of ecological relationships of western Lake Erie and actually impede the reader who is looking for these. Perhaps others will join me in wishing that the map of the area covered by the book--it appears on page 2 as figure 3--had been reproduced in sufficient size to be readable without a reading glass.

Dr. Langlois obviously has not done something very important for all authors to do--he has not decided what kind of audience he is addressing. So the text ranges from almost patronizingly simple and elementary statements as "Lake Erie is a large body of fresh water," (page 336) and "Nets do not catch fish which stand still, so the principal catches are made when great numbers of fish are moving," (page 341) to technical ecological jargon such as "Eutrophic lakes become senescent as a result of sedimentation, with first signs of senescence appearing in bays and areas protected against wind. . . . As an aquatic ecosystem passes into terrestrial phases and proceeds towards maturity its productivity increases" (page 359).

I am puzzled by another aspect of the book's organization. The section entitled "Summary



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and Discussion," which appears and reads like and independent chapter, is followed by about 60 pages on "Fish Management." But the summary and discussion (28 pages) seems actually to be more a sounding board for personal and professional grievances and differences of opinions than a roundup of knowledge on Lake Erie ecology.

Perhaps Dr. Langlois' whole thesis may be expressed in this single quotation from the book: "Scientific agriculture is more important to management of Lake Erie as a huge fish farm than mere attempts to manipulate the fish stocks, scientifically or otherwise" (page 411). Certainly he gives scant time to the future of fishery research--less than one full page at the end of the book and at the end of the section on fish management, but without suggesting possible relationships between research and management.

The book does contain a lot of useful reference material on western Lake Erie, mostly in the form of quotations from others and in summarizations of recommendations and actions of the State of Ohio fishery agencies over many years. The carefully prepared index and the list of references cited make the book usable from this standpoint.

My principal criticism of the book is that it contains too much of some material, too little of other. Too many of the elementary, too much of unsupported assertions about the Garden-of-Eden quality of the days of the first white settlers, too much of descriptive ecology and too little of ecological relationships and their significance, too much airing of personal differences of opinion, too much irrelevant detail of fish cultural and fishing and agricultural methods, and too little real summarization.

Whatever its other faults or merits, the book will bring you up-to-date on a long-standing feud which has done nothing to enhance the standing of fishery science and which has something of right on both sides, with the real truth somewhere in between, as usual.

--Paul E. Thompson

"Why Study Sturgeon?," by Robert T. Probst, article, *Wisconsin Conservation Bulletin*, March 1954, vol. 19, no. 3, pp. 3-5, illus., printed. Wisconsin Conservation Department, Madison 1, Wis. Discusses a research study, initiated about a year ago in connection with the management program, to obtain more information on the life history of the sturgeon and the status of its present population.

#### TRADE LISTS

The Office of Intelligence and Services, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., has published the following mimeographed trade lists. Copies of these lists may be obtained by firms in the United States from that office or from Department of Commerce field offices at \$1.00 per list.

#### Canneries - Morocco, 7 pp. (March 1954).

As a consequence of the production and marketing difficulties encountered by French Morocco's fish canning industry since 1951, the 114 fish canneries still operating have grouped themselves into 24 cooperative associations which control production and sales. Only these cooperative associations are included in the present listing. Production figures are not available, and classification has been made solely according to the number of canneries controlled by each association. Fruit and vegetable canneries are also included.

Sardines constitute the overwhelming part of French Morocco's canned fish products, although small quantities of tuna, mackerel, and other fish are canned.

#### Feedstuffs - Importers, Dealers, Manufacturers - Colombia, 7 pp. (March 1954). Lists

the names and addresses, size of firm, and type of products handled by all dealers in feedstuffs in Colombia, including firms handling fish meal and oil. The report states that in view of the extreme shortage of feedstuffs in Colombia and the fact that local manufacturers are unable to meet the demand, it is believed that there is a high potential for United States feedstuffs of all kinds.

#### Feedstuffs - Importers, Dealers, Manufacturers and Exporters - Denmark, 15 pp. (March 1954). Includes firms handling fish meal and

oil. Lists the names and addresses, size of firm, and type of products handled. The report includes a brief summary of basic data on the industry, and comments: "The types of feedstuffs manufactured in Denmark are oil-containing feedstuffs (to a great extent based upon imported raw materials), fish meal, and related products."

#### Feedstuffs - Importers, Dealers, Manufacturers, and Exporters - Japan, 13 pp., (March 1954). Includes firms handling fish meal and

oil. Lists the names and addresses, size of firm, and type of products. The report states: "Japan is primarily an importer of feedstuffs, but it does have some export trade, principally in fish meal, as production of most other feeds is usually just adequate or not sufficient to meet domestic requirements."

