



RECENT FISHERY PUBLICATIONS

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 FL - FISHERY LEAFLETS.
 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 |
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| CFS-1317 | Massachusetts Landings, January 1956, 3 pp. |
| CFS-1337 | Mississippi River Fisheries, 1954, 6 pp. |
| CFS-1349 | Shrimp Landings, April 1956, 4 pp. |
| CFS-1350 | Frozen Fish Report, May 1956, 8 pp. |
| CFS-1358 | Florida Landings, March 1956, 6 pp. |
| CFS-1360 | Imports & Exports of Fishery Products, 1951-1955, Annual Summary, 10 pp. |
| CFS-1361 | Massachusetts Landings, February 1956, 4 pp. |
| CFS-1362 | Lake Fisheries, 1954 Annual Summary, 11 pp. |
| CFS-1364 | California Landings, March 1956, 4 pp. |
| CFS-1365 | Fish Meal and Oil, May 1956, 2 pp. |
| CFS-1366 | Pacific Coast States Fisheries, 1954 Annual Summary, 7 pp. |
| CFS-1367 | Texas Landings, May 1956, 3 pp. |
| CFS-1368 | North Carolina Landings, May 1956, 3 pp. |
| CFS-1370 | Georgia Landings, May 1956, 2 pp. |
| CFS-1371 | Frozen Fish Report, June 1956, 8 pp. |
| CFS-1372 | New York Landings, May 1956, 4 pp. |
| CFS-1373 | Rhode Island Landings, May 1956, 3 pp. |
| CFS-1374 | Gulf Fisheries, 1954 Annual Summary, 9 pp. |
| CFS-1375 | South Atlantic Fisheries, 1954 Annual Summary, 9 pp. |
| CFS-1376 | New Jersey Landings, May 1956, 4 pp. |
| CFS-1377 | Maine Landings, May 1956, 4 pp. |
| CFS-1378 | Massachusetts Landings, March 1956, 5 pp. |
| CFS-1379 | Shrimp Landings, May 1956, 4 pp. |
| CFS-1380 | Fish Stick Report, April-June 1956, 2 pp. |
| CFS-1381 | Ohio Landings, June 1956, 2 pp. |
| CFS-1383 | Alabama Landings, May 1956, 2 pp. |
| CFS-1384 | Fish Meal and Oil, June 1956, 2 pp. |
| CFS-1392 | Mississippi Landings, May 1956, 2 pp. |
| FL - 435 | Major Commercial Fisheries with Data on Research Expenditures, 22 pp. |

- FL - 436 - Commercial Possibilities and Limitations in Frog Raising, 4 pp.

Wholesale Dealers in Fishery Products (Revised):

- SL - 13 - North Carolina, 1956, 6 pp.
 SL - 14 - South Carolina, 1956, 2 pp.
 SL - 20 - Texas, 1956, 3 pp.

Firms Canning (Revised):

- SL - 101 - Salmon, 1955, 3 pp.
 SL - 106 - Shad or Shad Roe, 1955, 1 p.
 SL - 107 - Fish and Shellfish Specialties, 1955, 7 pp.
 SL - 109 - Caviar and Fish Roe, 1955, 2 pp.
 SL - 110 - Oysters, 1955, 2 pp.
 SL - 111 - Clam Products, 1955, 2 pp.
 SL - 113 - Crab Meat, 1955, 2 pp.
 SL - 116 - Food for Animals, from Marine-Animal Products, 1955, 2 pp.
 SL - 118 - Groundfish Flakes, 1955, 1 p.

Firms Manufacturing (Revised):

- SL - 151 - Fish Meal, Scrap, Body & Liver Oils, 1955, 8 pp.
 SL - 152 - Oyster Shell Products, 1955, 2 pp.
 SL - 153 - Fish Glue and Isinglass, 1955, 1 p.
 SL - 154 - Seaweed Products, 1955, 1 p.
 SL - 155 - Marine Pearl Shell Buttons, 1955, 1 p.
 SL - 156 - Pearl Essence, 1955, 1 p.
 SL - 159 - Fresh-Water Mussel-Shell Products, 1955, 1 p.
 SL - 160 - Menhaden Oil and Meal, 1955, 1 p.

SSR-Fish, No. 175 - Sea Lamprey Control on the Great Lakes, 1953 and 1954, by Leo F. Erkkila, Bernard R. Smith, and Alberton L. McLain, 30 pp., illus., processed, May 1956. Development of electromechanical devices permitted practical application of sea-lamprey control in Great Lakes streams. The barriers were energized by 110-volt, 60-cycle, alternating current. Sea lampreys were effectively blocked in their upstream spawning migration. Traps were installed in the control structures to pass migratory fish upstream. The extent of fish mortality at the electrical barriers was influenced by stream velocities, conductivity of the water and stream bottom, and size and location of the traps. Biological data on the sea lampreys were collected at the control structures. Each stream appeared to have its own electrical characteristics. Several factors influencing the electrical fields were determined. Present information indicates limited possibility of improving the electrical field to reduce fish mortality.

- Sep. No. 444 - New Products from Fish Oils, Part I - Introduction.
 Sep. No. 445 - "Brown-Spotting" in the Southern Oyster.
 Sep. No. 446 - Fishery Tariff Concessions in 1956 Geneva Negotiations.

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

California Fisheries Trends and Review for 1954, by V. J. Samson, 33 pp., processed. (Available free from the Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) This is a review of the 1954 trends and conditions in the California fisheries. Among the subjects discussed are the tuna fishery (cannery receipts, total pack for 1945-1954, ex-vessel prices, domestic catch and fishing conditions, imports of frozen tuna, and canned tuna market conditions and price quotations); California sardine (pilchard) fishery (landings, ex-vessel prices, canned pack, and canned sardine prices); mackerel fishery (cannery receipts and ex-vessel prices); anchovy fishery; and imports of fishery products. Included in the statistical tables are data on tuna receipts and canned pack by months and species; landings and products of sardines (pilchards) by months, products, and areas; landings and pack of mackerel and jack mackerel by species and months; production of miscellaneous fishery products; freezings of fish and shellfish; cold-storage holdings; landings of market fish and shellfish at certain California ports; and imports of fishery products into California and Arizona.

Boston Fishery Products Monthly Summary, May 1956, 15 pp.; Boston Fishery Products Monthly Summary, June 1956, 15 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Landings and ex-vessel prices for fares landed at the Boston Fish Pier and sold through the New England Fish Exchange; and Boston frozen fishery products prices to primary wholesalers; for the months indicated.

(New York) Monthly Summary - May 1956 - Receipts of Fishery Products at the New York City Wholesale Salt-Water Market, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York 38, N. Y.) Receipts in the salt-water section of the Fulton Fish Market by species and by states and provinces for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, June 1956, 4 pp. (Market News Service, 18 S. King St., Hampton, Va.) Fishery production for the Virginia areas of Hampton Roads, Lower Northern Neck, and Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data; for the month indicated.

Gulf Monthly Landings, Production, and Shipments of Fishery Products, June 1956, 5 pp. (Market News Service, U. S. Fish and Wildlife Service, 609-611 Federal Bldg., New Orleans 12, La.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans, and wholesale prices of fish and shellfish on the New Orleans French Market; for the month indicated.

(Chicago) May 1956 Monthly Summary of Chicago's Fresh and Frozen Fishery Products Receipts and Wholesale Prices, 10 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces; fresh-water fish, shrimp, and frozen fillet wholesale market prices; for the month indicated.

(Seattle) Monthly Summary - Fishery Products, June 1956, 5 pp. (Market News Service, U. S. Fish and Wildlife Service, 421 Bell St. Terminal, Seattle 1, Wash.) Includes landings and local receipts as reported by Seattle and Astoria (Oregon) wholesale dealers.

California Fishery Products Monthly Summary, June 1956, 10 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of raw tuna and tunalike fish, herring, and squid; pack of canned tuna, mackerel, herring, anchovies, and squid; market fish receipts at San Pedro.

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Raising Bait Fishes, by John Dobie, O. Lloyd Meehan, S. F. Snieszko, and George N. Washburn, Circular 35, 127 pp., illus., printed, 45 cents, 1956. At the second annual meeting of the Tri-State Fisheries Conference (Michigan, Minnesota, and Wisconsin) in 1946, a special committee was appointed to assemble information on bait culture and to assign research to the contributing agencies. In 1948, the results of that cooperative project were published in Circular 12, Propagation of Minnows and Other Bait Species. The present publication is a revision of Circular 12 and adds the results of 5 years of pond investigations by research men in the Midwestern States. It presents information on the culture of bait fishes and is intended as a guide for those interested in commercial propagation of minnows.

MISCELLANEOUS PUBLICATIONS

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"Absorption of Salt by Whole Crays in Cooking," by K. W. Anderson, article, Fisheries Newsletter, vol. 15, no. 5, May 1956, pp. 15, 19, printed. Commonwealth Director of Fisheries, Department of Primary Industry, Canberra, Australia. Experiments, the results of which are given in this paper, were carried out at the C. S. I. R. O. Tasmanian Regional Laboratory at Hobart to obtain quantitative data on the absorption of salt by the meat of crayfish cooked in salt brines. The results show that the tailmeat absorbed very little salt even in the concentrated

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solutions; meat more than $\frac{3}{8}$ in. below the surface did not absorb salt until the brine strength was increased beyond 10 percent. There was a slight loss of natural salt by leaching on cooking in fresh water, but only from the surface layer. Leg meat absorbed small amounts of salt in brines of low strength and about 1.5 percent in the most concentrated solution.

American Nautical Almanac for the Year 1957, 294 pp., printed, \$2. Nautical Almanac Office, U. S. Naval Observatory, Washington, D. C., 1956. (For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C.) The object of this volume is to provide in convenient form the astronomical data required by mariners; that is, the Greenwich hour angle and declination of the celestial bodies used in navigation.

The Art of the Aqualung, by Robert Gruss, translated by Richard Garnett, 66 pp., illus., printed, \$2.75. Philosophical Library, 15 East 40th St., New York 16, N.Y., 1956. This book is not intended to be a manual for the expert diver, but it gives an outline of the way the aqualung is used in the sea, and of the elementary rules of safety which every diver is obliged to obey. It originally dealt only with diving on the French Riviera, where aqualung diving was born, and where it has been much developed since 1946. It supplies all the information and instruction that the beginner requires to swim and fish and explore, and it will also protect him against the dangers of the game. The translator has added for the English edition some information about British equipment and diving practice.

"Arctic and Sub-Arctic Marine Resources," by John Corlett, article, FAO Fisheries Bulletin, vol. IX, no. 2, April-June 1956, pp. 63-78, printed. Food and Agriculture Organization of the United Nations, Rome, Italy.

Australian Journal of Marine and Freshwater Research, vol. 7, no. 1, April 1956, 194 pp., illus., printed, single copy 7s. 6d. (85 U. S. cents). Commonwealth Scientific and Industrial Research Organization, 314 Albert St., East Melbourne, C. 2, Victoria. Includes two articles on bluefin tuna: (1) "The Southern Bluefin Tuna, *Thunnus thynnus maccoyii* (Castelnau), in Australian Waters," by D. L. Serventy. This paper deals with the results of the investigations of the Division of Fisheries, C.S.I.R.O., into the biology of the southern bluefin tuna, a representative in southern Australia and New Zealand of the tunny of Europe and the bluefin tuna of California. A comparative description of the morphology of the Australian form is given with a detailed study of its occurrence in Australia, including a discussion of the possible presence of local breeding stocks. The growth rate is considered from a study of length-frequency data. Considerable variations have been found in the growth rate of the younger age classes, as well as fluctuations in their relative abundance and their migratory movements along the eastern Australian coastline.

Reference is made to the feeding habits in various areas. (2) "Additional Observations on the Biology of the Northern Bluefin Tuna, *Kishinoella tonggol* (Bleeker), in Australia," by D. L. Serventy. This paper describes the northern bluefin tuna which occurs along the whole of the north coast of Australia and on the east and west coasts far south as Twofold Bay, N.S.W., and Cockburn Sound, W.A., respectively. Fin formulae, scale row and gill-raker data, and morphometrical characters are recorded separately for fish of the northern, eastern, and western regions. Marked regional differences occur; but it is considered that these can be largely (though not entirely) explained by differential growth of body parts, since only small sizes are found in the extreme north whereas large sizes predominate in the southern portions of the range. The hypothesis of two distinct species, suggested by size group distribution and regional variations, is rejected. Sexual maturity in *K. tonggol* is reached in the third year of life and spawning is in the summer. The species apparently feeds mainly on pelagic organisms. The Journal also includes the following articles: "The Marine Algae of Kangaroo Island. IV. The Algal Ecology of American River Inlet," by H. B. S. Womersley; "The Ecology and Distribution of Intertidal Organisms on the Rocky Shores of the Queensland Mainland," by R. Endean, R. Kenny, and W. Stephenson; "A Portable Recording Tide Gauge," by E. P. Hodgkin; "The Family Cerithiopsidae (Mollusca) from the Solanderian and Dampierian Zoogeographical Provinces," by C. F. Laceron; and "Additional Microplankton from Australian Late Mesozoic and Tertiary Sediments," by Isabel C. Cookson.

The Behavior of Pink Grooved Shrimp, PENAEUS DUORARUM Burkenroad, in a Direct Current Electrical Field, by James B. Higman, Technical Series No. 16, 25 pp., illus., printed. State Board of Conservation, Tallahassee, Fla., March 1956. A report of an investigation, undertaken by the Marine Laboratory of the University of Miami on behalf of the Florida State Board of Conservation, to determine whether pink-grooved shrimp could be forced to move involuntarily to the positive pole in a field of pulsed direct current. "If such forced movement of shrimp were possible," states the author, "the 'bad bottom' areas of the west coast of Florida might be opened to commercial shrimping. This area is at present only partially exploited due to widespread coral growths and large sponge beds which restrict trawling. A net designed to fish above these bottom obstructions could be electrified so that shrimp would be diverted into the path of the net. In this manner, areas previously unsuited to trawling would become accessible. Experiments conducted in a tank containing sea water showed that pink-grooved shrimp flipped backward toward the positive electrode when subjected to an electrical field of pulsed direct current. Series of tests were made to determine the optimal electrical conditions that would cause maximum movement to the posi-

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tive electrode. Maximum response was 87 percent when these optima were used: (1) a current density of 15 milliamperes per square inch; (2) a pulse rate of 5 per second; and (3) a current ratio of 1:3. (Mathematical treatment of the results indicates that the maximum response would be obtained by using a 1:2 current ratio with the same pulse rate and current density.) Using these optimal values, calculations of the power needed to electrify a 74-foot shrimp trawl showed that the size and the cost of the required electrical generator would be economically impractical. A method of pulsing current by battery or condenser discharge might conceivably reduce the capacity of the generator to a practical size. This problem, however, requires further investigation."

Berichte der Deutschen Wissenschaftlichen Kommission für Meeresforschung (Reports of German Scientific Commissions for Study of the Ocean), New Sequence, vol. XIV, no. 2, pp. 83-164, illus., printed in German with brief summaries in English. E. Schweizerbart'sche Verlagsbuchhandlung (Nagele u. Obermiller), Stuttgart, Germany, 1956. Contains the following papers: "Die Deutschen Schollenuntersuchungen von 1948-1954" (The German Studies on Flounders, 1948-1954), by Adolf Kotthaus; "Über das Verhalten des Oberflächensalzgehaltes in der Deutschen Bucht Während der Jahre 1873-1944 in Verbindung mit Langjährigen Salzgehaltsreihen der Sudlichen Nordsee" (On the Salt Content of the Surface Waters in the German Bay during 1873-1944, compared with the Long Term Series on Salt Content of the Waters in the Southern Part of the North Sea), by Erich Goedecke; and "Über den Transport von Meroplanktischen Larven aus dem Kattegat in die Kieler Bucht" (On the Transport of the Meroplanktonic Larvae from the Kattegat into the Bay of Kiel), by Karl Banse.

Black Sea Sprat, SPRATTUS SPRATTUS SULINUS (Antipa), by S. A. Stolanov, Bulletin of the Academy of Science No. 3, 92 pp., illus., printed in Bulgarian, 8LV (US\$1.20). Institute of Zoology, Sofia, Bulgaria, 1953.

Blood Sugar in Spiny Lobsters, Part I of the Hormonal Regulation of Metabolism in Crustaceans, by Bradley T. Scheer and Marlin Ann Ray Scheer, Contribution no. 11, 12 p., illus., printed. (Reprinted from Physiologia Comparata et Oecologia, an International Journal of Comparative Physiology and Ecology, vol. II, no. 3, 1951, pp. 198-209.) Department of Zoology and Entomology, University of Hawaii, Honolulu, Hawaii.

Boletim da Pesca, vol. X, no. 51, June 1956, 91 pp., illus., printed in Portuguese. Gabinete de Estudos das Pescas, 211 Avenida da Liberdade, Lisbon, Portugal. Contains, among others the following articles: "A Comissao Internacional das Pescarias do Noroeste do Atlantico e a Comparticipacao de Portugal" (The International Northwest Fisheries Commission and Participation of Portugal); "Alguns Problemas da Industria da Pesca de Benguela" (Some Problems of the Fishing Industry of Benguela).

Bulletin of Tokai Regional Fisheries Research Laboratory (Fisheries Agency), no. 11 (Contribution B), September 1955, illus., printed in Japanese and English. Tokai Regional Fisheries Research Laboratory, Tsukishima, Tokyo, Japan. A collection of reprints covering the following subjects: marine resources; oceanography; marine propagation; fishing gear and methods; chemistry of aquatic products; and utilization of aquatic products, such as food preservation and processing, and fish oils and vitamins.

(Canada) "B. C. Shrimp Fishery," article, Trade News, vol. 8, no. 12, June 1956, pp. 3-4, illus., printed. Department of Fisheries, Ottawa, Canada. Although it is relatively small among British Columbia's fisheries, shrimp fishing is one of the most continuous operations on the Pacific coast. Shrimp fishermen are out, along some part of the coast, every month of the year. There is a steady yield of shrimps in southern B. C. waters, particularly in the Gulf of Georgia and Howe Sound, with a peak period in February and a low one in November. This article describes the type of boat and operation of the gear used in the B. C. shrimp fishery.

(Canada) Regulations Respecting the Construction and Inspection of Fishing Vessels not Exceeding Eighty Feet Registered Length, 38 pp. illus., printed. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1956. These regulations, issued by the Department of Transport, were made pursuant to section 410 of the Canada Shipping Act by Order in Council P. C. 1956-150 of January 25th, 1956, and amended by Order in Council P. C. 1956-621 of April 19th, 1956. These regulations may be cited as the small fishing vessel inspection regulations. Part I on fishing vessels exceeding 15 tons, gross tonnage, covers application, submission of plans, bilge pumping arrangements, fuel tanks, exhaust pipes, underwater fittings, stern bearings, rudder stocks, shafting, construction of hulls, life-saving equipment, fire-extinguishing equipment, lights and signals, navigating equipment, anchors and cables, first inspection of new construction, and periodic inspection. Part II on fishing vessels not exceeding 15 tons, gross tonnage, covers application, life-saving equipment, fire-extinguishing equipment, precautions against fire, and periodic inspection. Appendix I shows methods of attaching sea connections to wooden hulls, and Appendix II covers regulations respecting liquefied petroleum gas systems for cooking and heating in ships as applicable to vessels not exceeding 80 feet in length.

(Canada) Summary Statistics of Canada's Fisheries, 1935-1954 (Plus Review of Statistics by Areas for 30 Years, 1925-1954), 32 pp., printed. (Reprinted from Canadian Fisheries Annual, 1956, pp. 65-96.) Department of Fisheries, Ottawa, Canada. Statistics are given for quantities and value of Canadian fishery products by areas for 1934-1948; value of gear and craft; number of fishermen; landings and value of East Coast fisheries and fresh-water

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fisheries by provinces and species, and West-Coast fisheries by species; and fresh and frozen fillet production. Imports and exports of fishery products, 1952-1955, by products and countries are given. Also included is a directory of fishery products by type, such as fresh and frozen fish (whole or dressed), fresh and frozen fish (filleted), smoked fish (dressed or filleted), cured fish, canned fish (not including shellfish), shellfish (in shell or meat--not canned), canned shellfish, fish oils and fish livers, fish meal, and other fishery products. Listed under each classification are the companies which process that particular product.

(Canada) Summary Analysis of the Fishing Operations of Small and Medium-Sized Modern Long-Liners and Dragger in the Atlantic Provinces, 1955, by John Proskie, *Production Studies* vol. 5, part 2, 58 pp., illus., processed. Markets and Economics Service, Department of Fisheries, Ottawa, Canada, May 1956. The results of an analysis of the operating accounts of 136 fishing craft at ports on the Atlantic Coast during the 1955 season are summarized and tabulated. The data are grouped according to type of craft and size-class and give information on (1) description of boats, capital costs, financing, ownership; (2) fishing activities; (3) landings and landed values; (4) prices, receipts, expenditures, net returns; (5) fishing effort and returns; (6) geographic operational areas; and (7) seasonal fishing effort and landings. These tables from the 2nd part of vol. 5 of the present series; part 1, a discussion of some of the important points emerging from this study, has not yet been released.

Clupeidae, by A. N. Svetovidov, *Fauna of the U.S.S.R. New Series* No. 48, vol. II, no. 1, printed in Russian. Zoological Institute of Academy of Science of U.S.S.R., Moscow, Russia, 1952.

Commercial Fishworm Production, by H. S. Swingle, *Progress Report Series* No. 62, 3 pp., printed. Agricultural Experiment Station, The Alabama Polytechnic Institute, Auburn, Ala., March 1956. Discusses the commercial production of fishworms, with instructions on the construction and management of worm beds, preparation of feed mixtures, methods of raising worms, and pests of worm beds.

Complete List of Lights and Other Marine Aids, Atlantic Coast of the United States, vols. 1-6, 927 pp., illus., printed, \$4.75. U. S. Coast Guard, Treasury Department, Washington, D. C., 1956. (For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C.) Lights and other marine aids to navigation maintained by or under authority of the United States Coast Guard on the Atlantic and Gulf Coasts of the United States, including the United States West Indies. This list is intended to furnish more complete information concerning aids to navigation than can be conveniently shown on charts. They are not intended to be used in navigation in the place of charts and coast pilots and should not be so used. The charts should be consulted for the location of all aids to navigation.

"The Conservation and Future Development of West Marine Resources," by Richard Van Cleve, article, Proceedings of the California Academy of Sciences, Fourth Series, vol. XXVIII, no. 12, pp. 425-439, February 17, 1956, printed. California Academy of Sciences, San Francisco, Calif. (Also Contribution No. 12, University of Washington, School of Fisheries, Seattle, Wash.) According to the author, "Prospects are bright for obtaining a considerable increase in production of fish from the sea but the need for preserving the productive capacity of our currently heavily-exploited stocks must not be forgotten. The combined efforts of fisheries biologists, hydrographers, and marine biologists should result in the development of potentially large oceanic fisheries but considerable technical improvements will be required to enable our fishermen to operate economically on these widely-scattered stocks. On the other hand, the development of adequate markets and more advanced and efficient marketing methods should result in the development of a large fishery along the west coast of North America on stocks which are essentially not now utilized. The best use of this fishing region requires some new means of using many species that cannot now be marketed. With the full development of our West Coast fisheries it will be necessary to anticipate the need to develop conservation measures along such lines as have been proven so effective by the International Pacific Halibut Commission in their rehabilitation of the north Pacific halibut stocks. The maintenance of our anadromous fish runs will involve the solution of the many problems encountered in handling upstream as well as downstream migrants at dams. Some means will also have to be found to compensate for spawning and rearing areas that will be, or have already been lost by flooding or by closing them to salmon by obstructive dams. Opening new streams by laddering impassable natural barriers and developing more efficient techniques of artificial propagation are both supplementing efforts to preserve the original salmon spawning grounds. Conservation measures similar to those used so effectively by the International Pacific Salmon Fisheries Commission can insure continued productivity of our salmon, provided the fresh-water environment can be preserved. Finally, settlement of the widely divergent views on ownership of deep-sea fisheries must be reached if their development and conservation are to be successfully accomplished. Treaties appear to be the best means devised so far to protect and develop our fisheries through the cooperative effort of interested nations."

De Duitse Zeevisserij (German Sea Fishing), by A. G. U. Hildebrandt with the collaboration of W. H. Th. Gieling, Report No. 215, 76 pp., illus., printed in Dutch with summary in English. Landbouw-Economisch Instituut, The Hague, Netherlands, 1954.

Definitions and Methods of Measuring and Counting in the Billfishes (Istiophoridae, xiphiidae), by Luis Rene Rivas, Contribution No. 149, 10 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 6,

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- no. 1, March 1956, pp. 18-27.) Marine Laboratory, University of Miami, Coral Gables, Fla.
- A Device for Measuring Fish, by Robert W. Hiatt and Christopher J. Hamre, Research Paper No. 1, 3 pp., illus., printed. (Reprinted from The Journal of Wildlife Management, vol. 9, no. 1, January 1945, pp. 79-81.) Department of Zoology and Entomology, University of Hawaii, Honolulu, Hawaii.
- "The Devilfish," by Robert J. Kemp, Jr., article, Texas Game and Fish, vol. XIV, no. 5, May 1956, pp. 8, 30, illus., printed, single copy 20 cents. State Game and Fish Commission, Walton Bldg., Austin, Texas.
- The Distribution of Eggs and Larvae of the Anchovy, STOLEPHORUS PURPUREUS Fowler, in Kaneohe Bay, Oahu, with a Consideration of the Sampling Problem, by Albert L. Tester, Contribution No. 12, 26 pp., illus., printed. (Reprinted from Pacific Science, vol. V, no. 4, October 1951, pp. 321-346.) Hawaii Marine Laboratory, University of Hawaii, Honolulu, Hawaii.
- "Don't Blacklist Ocean Fish," by Arnold Polonsky, article, The Black Fox Magazine and Modern Mink Breeder, vol. 40, no. 1, May 1956, pp. 9, 21-25, printed, single copy 35 cents. Hoffman Publications, Inc., 425 Fourth Ave., New York 16, N.Y. Discusses the handling, preservation, and utilization of fish for feeding mink. The author gives a few simple rules for utilizing fish in the feeding of mink as follows: "(1) Do not feed one variety of fish in any greater quantity than 15 percent of your ration; (2) Exercise the greatest amount of care in buying only from the best sources. The difference between a good product and a poor product may only represent a $\frac{1}{4}$ of a cent a pound, but that small amount helps the good producer stay interested in the business and making the best product; and (3) When feeding a high fish diet use meat sources that are heavier in fat or even supplement with additional fats such as lard. Carefully consider the varieties of fish that you will use. There are many combinations. Buy one type of fish in a package or block at a time and do your own blending just as you would with horsemeat, liver, lungs, tripe, etc."
- (East Pakistan) Fish Markets of East Pakistan and the Question of their Improvement, by Nazir Ahmad, 16 pp., illus., printed. Directorate of Fisheries, Government of East Bengal, Dacca, East Bengal, 1956. Describes a survey of the fish markets of East Pakistan, and includes suggestions for their improvement.
- "Effectiveness of Aureomycin on Keeping Quality of Sardine," by T. Tomiyama, M. Nomura and S. Kuroki, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 21, 1955, pp. 262-266, printed in Japanese with summary in English. Japanese Society of Scientific Fisheries, c/o Tokaiku Suisan Kenkyujo, Tsukishima, Kyobashi, Tokyo, Japan.
- "The Effects of Temperature and Predators on the Abundance of the Soft-Shell Clam, Mya Arenaria, in New England," by John B. Glude, article, Transactions of the American Fisheries Society, 1954, vol. 84, pp. 13-26, printed. American Fisheries Society, Colorado A and M College, Fort Collins, Colo.
- "Exploratory and Experimental Fishing," by S. J. Holt, article, FAO Fisheries Bulletin, vol. IX, no. 1, January-March 1956, pp. 1-22, printed. Food and Agriculture Organization of the United Nations, Rome, Italy.
- The Expressible Fluid of Fish Fillets. IV. -- The Expressible Fluid of Iced Cod, by A. Banks, DSIR Food Investigation Memoir No. 958, 4 pp., printed. (Reprinted from Journal of the Science of Food and Agriculture, vol. 6, no. 10, 1955, pp. 584-587.) Department of Scientific and Industrial Research, Torry Research Station, Aberdeen, Scotland. A number of estimations have been made of the amount and composition of the expressible fluid obtained from gutted cod iced for various periods. The amount of expressible fluid increased rapidly as the fish passed out of rigor mortis and then only slowly for a period, followed by a further fairly rapid increase after 168 hours on ice. It is suggested that the values obtained are associated with the physical changes in texture that occur during the gradual resolution of rigor mortis and with subsequent slight changes in texture and in the colloidal proteins of the protoplasm. The amount of expressible fluid obtained does not appear to be related to the size of the fillets.
- "Fertile Oysters May Bring New Industry," article, South Carolina Wildlife, vol. 3, no. 2, Spring Issue 1956, pp. 11, 15, illus., printed. South Carolina Wildlife Resources Department, Columbia, S. C. Discusses the fertility of the South Carolina oysters, the threats to the oyster industry in that area, and the studies being conducted for the proper development of the oyster industry.
- Fertilizers in Fish Ponds, by C. H. Mortimer, Fishery Publication No. 5, 155 pp., illus., printed, 25s. (US\$3.50). H. M. Stationery Office, York House, Kingsway, London, W.C. 2, England, 1954.
- Fish Cookery, by Linnea C. Dennett, Circular 403, 12 pp., illus., printed. Agricultural Extension Service, College of Agriculture, University of Wisconsin, Madison, Wis., revised November 1955. Includes instructions for buying fresh fish; methods of cleaning, skinning, boning, and storing fish, and thawing frozen fish; and various recipes for cooking fish and shellfish.
- "The Fisheries of Antarctica," by G. C. L. Bertram and J. D. M. Blyth, article, FAO Fisheries Bulletin, vol. IX, no. 2, April-June 1956, pp. 79-84, illus., printed, single copy 30 cents. Food and Agriculture Organization of the United Nations, Rome, Italy. (Also for sale by

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Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.)

"Fish, Fisheries and Environmental Factors," by J. N. Carruthers, article, Oceanus, vol. IV, no. 2, Winter 1956, pp. 14-20, illus., printed. Woods Hole Oceanographic Institution, Woods Hole, Mass. Some of the author's views in regard to the climatic and oceanographic factors influencing the environment of fish. According to the author, "Fish catches may be predicted through a knowledge of wind conditions during and after spawning."

Fisheries Newsletter, vol. 15, no. 2, February 1956, 24 pp., illus., printed. Commonwealth Fisheries Office, Dept. of Primary Industry, Canberra, Australia. The entire issue of this Newsletter is devoted to articles on shrimp (prawns), covering the biology, technology, and economics of the industry: "Australian Prawns--Identification and Biology," by W. Dall; "Australian Prawns--The Gear that Takes Them," by A. O'Grady; "Australian Prawns--The Broad View on Exports," by F. J. Kearns; and "Shrimp Big Industry in U. S. A." The latter paper is an account of the United States shrimp industry based mainly on "Marketing and Utilization of Shrimp in the United States," a paper prepared for the Indo-Pacific Fisheries Council meeting in Tokyo by Don M. Clifford of the U. S. Fish and Wildlife Service.

Fish Handling and Hold Construction in Canadian North Atlantic Trawlers, by W. A. MacCallum, Bulletin No. 103, 66 pp., illus., printed. Fisheries Research Board of Canada, Ottawa, Canada, 1955. This bulletin is concerned mainly with the handling of the catch aboard trawlers fishing North Atlantic groundfish, principally cod, haddock, and flatfish. The quality of the landed fish is influenced by the methods of handling the catch on deck and in the fish hold and the conditions of stowage. No subsequent steps in the processing chain can improve upon this landed quality. This bulletin is intended to assist fishermen, boat owners, operators, and processors to understand the nature of the complex problem of preservation at sea, to demonstrate proper methods of handling, and to describe fish-hold construction suited for the iced stowage of their catches. The various chapters discuss spoilage and its control aboardship; ice and refrigeration requirements in trawler fish holds; the development of metal-surfaced, wholly refrigerated fish holds; good practice in fish-hold construction, outfitting, and refrigeration; and fish-room costs.

Fisken og Havet ved Gronland (Fish and the Sea of Greenland), by P. M. Hansen and F. Hermann, Skrifter fra Danmarks Fiskeri-og Havunder Sogelser (Papers of the Danish Fishery and Sea Investigations), No. 15, 128 pp., illus., printed in Danish. 1 Kommission Hos, Copenhagen, Denmark, 1953.

The Ft. Myers, Florida, Fisheries School of the Marine Laboratory of the University of Miami, by Jack Brawner and C. P. Idyll, 4 pp., proc-

essed. Marine Laboratory, University of Miami, Coral Gables, Fla. For several years the Marine Laboratory of the University of Miami has sought means of establishing fishery schools in Florida. With the hope that funds would eventually become available, and because of the widespread interest by the industry, it was decided to establish a "pilot" school in Florida in the belief that the experience gained would be of benefit not only to Florida, but other states as well, when a regular program of fishery education became a reality. Ft. Myers was chosen for the first school and it was established on March 1, 1956. This leaflet describes the initial organization of the fishery school, its activities, and objectives. The objectives may be listed as follows: (1) to arouse the interest of boys in the skilled and honorable trade of commercial fishing; (2) to arouse the interest of able students in the professional fisheries field, which, like most technical professions lacks a sufficient number of trained men; and (3) to draw attention to the fisheries industry, and to strengthen it by promoting the production of high-quality fishery products, which will lead to increased sales and prosperity in this important phase of our economy.

"Freezing in Alginate Jelly," by Alf Olsen, article, Norwegian Fishing News, vol. 3, no. 3, 1956, pp. 7-8, printed. Norwegian Fishing News, Ltd., Bergen, Norway. Describes the method of using alginate jelly in the freezing of herring for bait and in the freezing of sardines, shrimp, and small fish. Tests indicate that this method has the following advantages: (1) rancidity is prevented; (2) the fish will not dry up; (3) since the jelly thaws before the fish, the fish can easily be separated without damage; (4) the salts which are added do not migrate, so avoiding a concentration of salts on the surface of the fish; (5) the jelly setting time can be regulated; (6) the freezing time is considerably reduced; (7) the unpleasant smell, so noticeable when frying herring, almost disappears; and (8) when stored in jelly for a period, herring becomes milder in taste.

General Agreement on Tariffs and Trade--Analysis of United States Negotiations--Sixth Protocol (Including Schedules) of Supplementary Concessions, Department of State Publication 6348, Commercial Policy Series 158, 310 pp., processed, \$1. Department of State, Washington, D. C., June 1956. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.)

General Agreement on Tariffs and Trade (Message from The President of the United States Transmitting the Sixth Protocol of Supplementary Concessions to the General Agreement on Tariffs and Trade, Pursuant to Section 4 of the Trade Agreements Extension Act of 1951, as Amended), House Document No. 421, 541 pp., processed. United States Government Printing Office, Washington 25, D. C., 1956.

General Agreement on Tariffs and Trade, Schedule XX, United States of America (Annotated

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

to Show Countries With Which Concessions Were Initially Negotiated at Geneva in 1956), Department of State Publication 6362, Commercial Policy Series 159, 127 pp., processed, 60 cents. Department of State, Washington, D. C. (For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.)

How to Produce and Sell Smoked Florida Mullet, by Jack Brawner and Phillip A'Brans, Educational Series No. 8, 16 pp., illus., printed. State Board of Conservation, Tallahassee, Fla., June 1956. The Florida mullet industry is presently in a depressed condition, which is partly the result of a trend towards consumption of packaged fishery products. This report is published primarily for the benefit of small wholesalers and retailers, in an effort to alleviate depressed conditions due to the decline in the demand for fresh fishery products. Detailed instructions are given for building a smokehouse capable of producing up to about 2,000 pounds per week. This smokehouse can be produced cheaply, probably costing less than \$100, excluding labor. Instructions are given for smoking mullet, emphasizing the procedures necessary to produce a good product. Potential market outlets for mullet include supermarkets, small grocery stores, retail fish markets, wholesale fish dealers, vegetable truck routes, fish truck routes, delicatessen stores, restaurants, road-side stands, and bars.

"India--Proclamation of the President of India (Sovereign Right over Continental Shelf)" XVI.2/55.1), Food and Agricultural Legislation, vol. IV, no. 3, 1955, 1 p., printed, single copy \$1. Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.

Informaciones Estadísticas sobre Pesca, Años 1953-1954 (Statistical Information on Fisheries, 1953-1954), 60 pp., illus., processed in Spanish. Direccion General de Pesca y Caza, Valparaiso, Chile.

Inter-American Specialized Conference on "Conservation of Natural Resources: The Continental Shelf and Marine Waters" (Ciudad Trujillo, March 15-28, 1956), Final Act, Conferences and Organizations Series No. 50, 46 pp., processed, 50¢. Division of Conferences and Organizations, Department of International Law, Pan American Union, Washington, D. C., 1956. The Inter-American Specialized Conference held in Ciudad Trujillo on March 15-28, 1956, was convoked for the purpose of studying as a whole the different aspects of the juridical and economic system governing the submarine shelf, oceanic waters, and their natural resources in the light of present-day scientific knowledge. The resolutions of the Conference are included as well as statements of the delegations from Brazil; Mexico; Costa Rica, Chile, Ecuador, and Peru; Guatemala; El Salvador; Colombia; United States; Cuba; Panama; Uruguay; and Venezuela.

(International Pacific Salmon Fisheries Commission) Annual Report 1955, 41 pp., illus., print-

ed. International Pacific Salmon Fisheries Commission, New Westminster, Canada, 1956. A report of the Commission, an international agency appointed under a convention between Canada and the United States for the protection, preservation, and extension of the sockeye salmon fisheries in the Fraser River system. Discussed in this report are the various activities of the Commission during 1955; the regulations, the United States fishery, the Canadian fishery, Indian catch statistics, escapement, the 1956 cycle, rehabilitation of barren areas, watershed protection, and general investigations.

Irish Moss (In the Maritime Provinces), by Constance I. MacFarlane, 20 pp., illus., printed. Nova Scotia Research Foundation, P. O. Box 1027, Halifax, Nova Scotia, 1956. This bulletin is in part a revision of the Fisheries Research Board Atlantic Biological Station Circular No. 10, by A. W. H. Needler (1947) and contains material and excerpts from that paper. It is intended to assist those who may wish to identify Irish moss, to find it, and to dry it for marketing. Numerous problems relating to seaweeds are yet unsolved and many questions remain unanswered in this bulletin. Revision will be necessary from time to time as results become known from further research. The seaweed industry has undergone a series of changes. From being used as a source of potash and iodine in the 18th and 19th centuries, seaweeds have now become a source of extracts though the seaweeds themselves are often used as food or fertilizers. New uses for the extract are constantly being sought. The dairy industry is a large consumer; the baking, confectionery, and pharmaceutical industries also use considerable amounts, as well as the brewing, leather, and paint industries. For most purposes Irish moss extract must compete with other substances, such as various plant gums, synthetic adhesives, and starch. The resulting competitive price makes it necessary for harvester to gather several hundred pounds per day. An experienced harvester with good equipment can sometimes harvest a thousand pounds at a tide.

"Is Feeding Fish Dangerous?" by A. B. DeHaan article, The Black Fox Magazine and Modern Mink Breeder, vol. 39, no. 11, March 1956, pp. 13, 26-29, printed, single copy 35 cents. Hoffman Publications, Inc., 425 Fourth Ave. New York 16, N. Y. The author, a well-known mink breeder, discusses some of his problems and experiences in using fish in mink diets.

Ist Baktericides Eis zum Vereisen Frischer Seefische auf den Fischdampfern Erwiinscht oder Uberhaupt Zulassig? (Is Bactericidal Icing of Fresh Sea Fish on Board Fishing Vessels Desirable or at all Admissible?) by T. Seeler, article, Deutsche Lebensmittel-Rundschau, 51, 1955, pp. 133-135, printed. Tubinger, S. Strasse 53, Stuttgart, Germany.

Kalamiesten Niksikirja (A Book of Fishermen's Tricks), by E. Halme, 395 pp., illus., print-

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ed in Finnish. Soderstrom Osakeyhtio, Porvoo, Helsinki, Finland, 1955.

"The Lake Sturgeon," by John Van Oosten, article, Texas Game and Fish, vol. XIV, no. 5, May 1956, pp. 12, 25, illus., printed, single copy 20 cents. State Game and Fish Commission, Walton Bldg., Austin, Tex.

"The Lake Trout Endangered in the Great Lakes," by James W. Moffett, article, Our Endangered Wildlife, pp. 23-24, printed. National Wildlife Federation, 232 Carroll St. NW., Washington 12, D. C.

Laws Concerning the Nationality of Ships, Doc. ST/LEG/SER.B/5, 200 pp., printed, \$1.50. United Nations Department of Public Information, Press and Publications Division, United Nations, N. Y.

This book was prepared by the Codification Division of the UN Office of Legal Affairs, primarily for the use of the International Law Commission in its continuing comprehensive study of the regime of the high seas.

The Commission has been engaged upon the task of codifying the law of the high seas and of territorial waters ever since its first session in 1949.

No attempt is made in the new volume to present conclusions, or to classify the information contained, most of which was furnished by governments at the request of Secretary-General Dag Hammarskjöld. In cases where governmental information was not available, other sources were consulted. Most of the texts are in English, but a few, which were submitted in French, are presented in that language.

In a brief introduction, the Codification Division notes that there is "no uniformity" in the conditions on which states allow merchant ships to fly their flags. It goes on, however, to quote an earlier report on the regime of the high seas by J. P. A. Francois, noted Netherlands legal authority and a member of the International Law Commission, who said: "The acknowledged freedom of a State to lay down the conditions on which it shall grant its nationality to ships is, of necessity, based on the concept that the national element with regard to a ship and the manner in which it is used have a wide variety of application, and that a certain minimum should be guaranteed in the general interest of all who use the high seas."

A Measured Delay in the Migration of Adult Chinook Salmon at Bonneville Dam on the Columbia River, by Robert W. Schoning and Donald R. Johnson, Contribution No. 23, 17 pp., illus., printed. Fish Commission Research Laboratory, Route 1, Box 31A, Clackamas, Oreg., May 1956.

Methods of Exterminating Wild Fish in Ponds, by S. Sarig, Bamidgeh, Bulletin of Fish Culture in Israel, vol. 6, no. 1, printed in English and

Hebrew. Department of Fisheries, Ministry of Agriculture, Agricultural Publications Section, P. O. Beit-Shean, Israel, 1954.

Modern Marine Engineering, by D. W. Rusdorff, 154 pp., illus., printed, \$4.75. Philosophical Library, 15 East 40th St., New York 16, N. Y. A concise review of the various types of propulsion plants now in use in vessels for different services.

Modern Naval Architecture, by W. Muckle, 154 pp., illus., printed, \$4.75. Philosophical Library, 15 East 40th St., New York 16, N. Y. Gives an account of the various problems the naval architect must solve.

Nord- og Sor-Norsk Naeringsliv, 1955-1956--Fiskeindustri--Fiskerier--Produksjon og Handel (North- and South-Norwegian Industries, 1955-1956--Fish Processing Industry--Fishes--Production and Commerce), 354 pp., illus., printed in Norwegian and English. Halvorsen & Larsen A/s, Trondhjemsavn. 72, Oslo, Norway. Includes the following articles with English translations: "Territorial Limits and Fishery Protection," by C. J. Hambro (in English only); "The Organization of the Fisheries Administration in Norway," by Johs. Sellaeg; "International Agreements for the Protection of Fish Stocks," by Johs. Sellaeg; "The Scandinavian Fishery Conferences," by Johs. Sellaeg; "The Norwegian Fisheries," by Johs. Sellaeg (in English only); "Norwegian Fish Exports--General Survey," by Per Rogstad; "Sales Organizations in the Norwegian Fisheries Industry," by Per Rogstad; "Exports of Herring and Herring Products," by Magne Oppedal; "The Export of Fresh and Frozen Fish (Other than Herring), Stockfish, Klipfish and By-products," by Carl Bjorge; "The Norwegian Herring Oil and Herring Meal Industry," by M. Midsem; "Refrigeration Plants in the Norwegian Fisheries Industry," by M. Midsem; "The Relief Service for the Sealers in the Western Ice," by Birger Rasmussen; and "The Result of the Sealing for 1954." Other articles on fisheries, in Norwegian only, are also included.

Norges Matnyttige Fisk (Norwegian Edible Fish), by H. Tambs-Lyche, Fiskeridirektoratets Skrifter, Ser. Fishkeri, vol. 3, no. 4, 132 pp., printed in Norwegian. Director of Fisheries, Bergen, Norway, 1955. Gives a very good summary of present knowledge of commercial fishes in northern waters. For nearly every important fish the following descriptions and data are given: (1) Norwegian catches from various waters and the comparative values from several other countries; (2) geographical distribution of the species and various stocks; (3) summary on the studies of the biology and ecology of the species; and (4) life history. This book is very useful for fisheries education and as a handbook for the scientists in related fields (e.g., the hydrographer).

"Norway--Regulations Relating to the Protection of Brisling and to the Canning of Brisling and Small Herring," XVI.5/55.1, Food and Agricultural Legislation, vol. IV, no. 3, 1955, 5 pp., printed, single copy \$1. Columbia Uni-

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- versity Press, International Documents Service, 2960 Broadway, New York 27, N. Y.
- "Norway--Regulations Relating to the Handling, Processing and Transport of Fish to be Converted into Salted Fish, Klipfisk and Stockfish," XVII. 2/55.1, Food and Agricultural Legislation, vol. IV, no. 3, 1955, 11 pp., printed, single copy \$1. Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y.
- "Observations on the Shoaling Behaviour of Cod (*Gadus callarias*) in Deep Water Relative to Daylight," by G. H. Ellis, article, Journal of the Marine Biological Association of the United Kingdom, vol. 35, no. 2, 1956, pp. 415-417, illus., printed. Cambridge University Press, 32 East 57th St., New York 22, N. Y. During a commercial fishing voyage to the Barents Sea continuous observations were made on the shoaling behavior of cod in deep water over a period of 19 hours. The cod were studied by the use of a Kelvin and Hughes MS. 24J recording echo-sounder. Compact cod shoals recorded in 100-fm. during daylight dispersed at sunset and re-formed at sunrise. The maximum possible vertical movement of the fish during observation was 30 fm. The catches did not vary significantly with the formation of the cod.
- The Occurrence and Taxonomic Relationships of the Blue Marlin (MAKAIRA AMPLA Poey) in the Pacific Ocean, by Luis Rene Rivas, Contribution No. 153, 15 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 6, no. 1, March 1956, pp. 59-73.) Marine Laboratory, University of Miami, Coral Gables, Fla.
- Opbevaring af Levende Hummer (Storage of Live Lobster), by F. Bramsnaes and Jan Boetius, 16 pp., illus., printed in Danish with summary in English. (Reprinted from Meddelelse fra Fiskeriministeriets Forsøgslaboratorium, Nov. 1953) Fiskeriministeriets, Borgergade 16, Copenhagen, Denmark.
- (Oregon) Fisheries Statistics of Oregon, 1950-1953, Contribution No. 22, 33 pp., printed. Fish Commission of Oregon, Portland, Oregon, February 1956. This statistical bulletin provides a ready source of information concerning the productivity of the marine and river commercial fisheries of the State of Oregon for 1950-1953. These fisheries data are given in pounds by species, rivers, and months.
- A Pattern of Coastal Circulation Inferred from Synoptic Salinity Data, by Ilmo Hela, Contribution No. 154, 10 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 6, no. 1, March 1956, pp. 74-83.) Marine Laboratory, University of Miami, Coral Gables, Fla.
- La Pesca en Espana, I. Cataluna (Fisheries of Spain. I. Catalonia), by C. Bas, E. Morales, and M. Rubio, 468 pp., illus., printed in Spanish. Instituto de Investigacione Pesqueras, Barcelona, Spain, 1955. The first of a series, this publication covers: physical conditions of fisheries; fishing boats and gear; marine productivity; the fishery; ports and fishing beaches; economics; and present-day fisheries.
- Pesca y Caza (Fishing and Hunting), no. 7, 100 pp., illus., processed in Spanish. Ministerio de Agricultura, Direccion de Pesqueria y Caza, Lima, Peru, 1956. Includes, among others; articles on Peru's fisheries and data for 1953, some new fish species, shellfish, and a description of some of Peru's more common species.
- Plants and Animals of the Sea-Shore, by W. J. Prud'Homme van Reine, translated from the Dutch and adapted for the coasts of Britain in collaboration with Mona C. Harrison, 144 pp., illus., printed. John Murray, Albemarle Street, W., London, England, 1955. A handy guide containing drawings and descriptions of over 450 species of fish, shellfish, seaweeds, birds, etc.
- Practical Marine Engineering, by Reno C. King, Jr., 2nd edition, 541 pp., illus., printed, \$7.35. Prentice Hall, 70 5th Ave., New York 11, N. Y. Outgrowth of lectures given to applicants for Merchant Marine Engineering Officer licenses.
- "The Pygmy Whitefish, *Coregonus coulteri*, in Lake Superior," by Paul H. Eschmeyer and Reeve M. Bailey, article, Transactions of the American Fisheries Society, 1954, vol. 84, pp. 164-199, printed. American Fisheries Society, Colorado A and M College, Fort Collins, Colo.
- Recent Developments in the Freezing of Fish at Sea. II. --The Quality of Sea-Frozen Cod, by A. Banks, DSIR Food Investigation Memoir No. 965, 3 pp., printed. (Reprinted from Chemistry and Industry, 1955, pp. 1360-1362.) Department of Scientific and Industrial Research, Torry Research Station, Aberdeen, Scotland. Discusses investigations on the quality of fish treated in different ways before freezing and cold storage. These investigations have shown that the fish should be gutted and well iced very soon after catching; that they should not be held for longer than three days in ice before freezing, and that the frozen products should be cold-stored at -28° to -30° C. Treated in this way, the products on thawing should prove highly acceptable, and a properly arranged scheme of freezing at sea based on these principles should do much to improve the over-all quality of fish caught on distant fishing grounds.
- Relation of Chemical Structure to Irritant Responses in Marine Fish, by Robert W. Hiatt, John J. Naughton, and Donald C. Matthews, Contribution No. 36, 6 pp., printed. (Reprinted from Nature, vol. 172, November 14, 1953, p. 904.) Hawaii Marine Laboratory, University of Hawaii, Honolulu, Hawaii.

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"Report on the Distribution and Abundance of Pacific Herring (*Clupea pallasii*) along the Coast of Central and Southern California," by Daniel J. Miller and John Schmidtke, article, California Fish and Game, vol. 42, no. 3, July 1956, pp. 163-187, illus., printed. Department of Fish and Game, 926 J St., Sacramento 14, Calif.

Report on Research from the ERNEST HOLT into the Fishery near Bear Island, 1949 and 1950, by M. Graham, G. C. Trout, R. J. H. Beverton, J. Corlett, A. J. Lee, and R. W. Blacker, Fishery Investigations Series II, vol. XVIII, no. 3, 87 pp., illus., printed, 12s. 6d. (US\$1.75). H. M. Stationery Office, York House, Kingsway, London, W. C. 2, England, 1954.

"The Reproduction of Lake Trout in Southern Lake Superior," by Paul H. Eschmeyer, article, Transactions of the American Fisheries Society, 1954, vol. 84, pp. 47-74, printed. American Fisheries Society, Colorado A and M College, Fort Collins, Colo.

Research Briefs, vol. 6, no. 2, December 1955, 41 pp., illus., printed. Fish Commission Research Laboratory, Route 1, Box 31A, Clackamas, Ore. Includes the following articles: (1) "Size Composition, Growth, and Seasonal Abundance of Juvenile English Sole (*Parophrys vetulus*) in Yaquina Bay," by Sigurd J. Westheim; (2) "Fifth Progress Report on Salmon Diet Experiments," by Wallace F. Hublou, Thomas B. McKee, Ernest R. Jeffries, Russell O. Sinnhuber, and Duncan K. Law; (3) "A Survey of the Bull Kelp Resources of the Oregon Coast in 1954," by Kenneth D. Waldron; (4) "Escapement of Spring Chinook Salmon and Steelhead Over Willamette Falls in 1954," by Earl F. Pulford; (5) "River Recoveries of Marked Silver Salmon of the 1949 Brood Released from the Nehalem River Hatchery," by Kenneth A. Henry; and (6) "Kidney Disease in Adult Chinook Salmon and Its Transmission by Feeding to Young Chinook Salmon," by James W. Wood and Joe Wallis.

The Scientific Name of the Nehu, and Engraulid Baitfish of the Hawaiian Islands, by William A. Gosline, Contribution No. 5, 1 p., printed. (Reprinted from Pacific Science, vol. V, no. 3, July 1951, p. 272.) Hawaii Marine Laboratory, University of Hawaii, Honolulu, Hawaii.

Sea Moss (*CHONDRUS CRISPUS*), Survey Pemaquid Point to Owls Head, by Walter S. Foster, General Bulletin No. 5, 8 pp., illus., printed. Department of Sea and Shore Fisheries, Vickery-Hill Bldg., Augusta, Me., December 1955. In surveying the sea moss, *Chondrus crispus*, an attempt has been made to determine the amount of moss an average moss raker could gather from the ledges and islands from Pemaquid Point to Owls Head. Includes maps of the regions surveyed showing density of moss and a code used to express in general terms the prevailing sea moss raking and growing conditions of the particular areas indicated on the maps.

The Selective Action of Gill Nets on Fraser River Sockeye Salmon, by Alvin E. Peterson, Bulletin 5, 101 pp., illus., printed. International Pacific Salmon Fisheries Commission, New Westminster, B. C., Canada, 1954.

Ship and Boat Builder Annual Review, 1955, 382 pp., illus., printed, 30s. (US\$4.20). John Trundell Ltd., Temple Chambers, Temple Ave., London, E. C. 4, England.

"Snapping Turtle (*Chelydra serpentina*)," by George J. Knudsen, article, Wisconsin Conservation Bulletin, vol. 21, no. 5, May 1956, pp. 36-37, illus., printed. Wisconsin Conservation Dept., Madison 1, Wis. A brief description of Wisconsin's snapping turtle and its habits.

Some Aspects of the Schooling Behaviour of Fish, by Miles H. A. Keenleyside, 66 pp., illus., printed. (Reprinted from Behaviour, vol. VIII, 2-3, pp. 183-248.) E. J. Brill, Leiden, Netherlands, 1955.

The South African Fishing Industry Handbook and Buyers' Guide, 1956, 245 pp., illus., printed, £2 2s. (US\$5.90). South African Shipping News and Fishing Industry Review, Box 2598, Cape Town, South Africa, 1956. This is the third edition of a handbook designed to acquaint readers with the various aspects of the South African fishing industry. The book is divided into several sections. "Marine Resources of South Africa" discusses South Africa's place in the world's fish trade, the processing factories, the trawling industry, the rock lobster industry, fishing in South-West Africa, and South African fish species. The list of species in this section gives the English, Afrikaans, and scientific name for each species caught in South Africa. In the section "Organizations Serving the Industry," the following are described: The Division of Fisheries, the Fishing Industry Research Institute, the Fisheries Development Corporation, Weskus-Vissersvereniging (West Coast Fishermen's Association), the South African Bureau of Standards, the Food and Agriculture Organization, as well as a description of the control of fisheries in South-West Africa, fishing harbors in South Africa, and inshore fishing industry organizations. Brief biographical notes on the leading personalities professionally connected with the industry are to be found in the section "Who's Who in the Fishing Industry." "Guide to Companies in the Fishing Industry" is a section which lists the names, functions, addresses, factories, capital, directors, and affiliations of companies operating in South and South-West Africa. A classified list of fish products with brand and producers' names is contained in the section "Products of the Fishing Industry." "Suppliers to the Fishing Industry--Buyers' Guide" is a classified list of products offered to the fishing industry. Details on South African motor fishing boats, motor trawlers, and steam trawlers, and South-West African boats, and other miscellaneous craft are given in the

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section "Fishing Craft Operating in South and South-West Africa." The last section--"Marine Engines"--is a detailed list of engines offered for installation in South and South-West African fishing boats.

"Status of Sea Lamprey Control," by James W. Moffett, article, Wisconsin Conservation Bulletin, vol. 21, no. 4, April 1956, pp. 14-17, illus., printed. Wisconsin Conservation Dept., State Office Bldg., Madison 1, Wis. This article reports progress in the application of sea-lamprey control measures. According to the author, "The lamprey is likely to cause further damage before it is controlled. Electromechanical weirs can solve the problem slowly. Selective poisons are promising but largely unproved and unavailable in quantity."

Studies on the Question of Salmon "Economy" in the Far East, 207 pp., illus., printed in Russian. Akademija Nauk SSSR, Ihtiologitseskaja Komissija, Moscow, Russia, 1954. Discusses the biological, economical and fisheries technological problems of Pacific salmon off the Russian Pacific coast.

Theoretical Yields at Various Rates of Natural and Fishing Mortality in Stabilized Fisheries, by Albert L. Tester, Contribution No. 30, 8 pp., illus., printed. (Reprinted from Transactions of the American Fisheries Society, vol. 82, 1952, pp. 115-122.) Marine Laboratory, University of Hawaii, Honolulu, Hawaii, 1953. This paper presents a series of curves depicting the yields for fisheries stabilized at various rates of natural and fishing mortality, for each of three types of S-shaped growth curve: Type A, point of inflection early in life; Type B, point of inflection about mid-life; and Type C, point of inflection late in life.

A Triple Frequency Echo Sounder, by D. H. Cushing and I. D. Richardson, Ministry of Agriculture, Fisheries and Food Fishery Investigations, Series II, vol. XX, no. 1, 20 pp., illus., printed, 3s. (40 U.S. cents). Her Majesty's Stationery Office, London, England, 1955. In experiments with dead fish hung from below an echo sounder significant differences between signals returned from cod and herring were found, using any one frequency; it was further found that a lower frequency would be best for cod and a higher frequency best for herring. This required testing on fish shoals in the sea, partly because in the experimental work some part of the echo received might have been due to the frame and partly because the arrangement of the dead fish in a shoal was an artificial one. Another subject for investigation was that of the variability in signal amplitude, which might well be proportional to the number of fish per unit volume. In order that these two points might be investigated, a triple frequency echo sounder was designed and used in the investigations described in this paper.

"Two Obscure Oyster Enemies in New England Waters," by V. L. Loosanoff, article, Science, vol. 123, no. 3208, June 22, 1956, pp. 1119-

1120, printed, single copy 25 cents. American Association for the Advancement of Science, Business Press, Lancaster, Pa. Describes two forms of oyster enemies recently observed in New England waters which may be responsible for several "mysterious" mortalities of oysters, especially the young. One of these enemies is a flatworm, the polyclad (Stylochus ellipticus), and the other is a small gastropod (Menestho bisuturalis).

Über die Verwendung von Bactericiden Zusätzen beim Waschen von Frischfisch (The Use of Bactericidal Additives in the Washing of Fresh Fish), by W. Partmann, article, Kältetechnik, 7, 1955, pp. 270-275, printed. Kältetechnik, Lamnstrasse 2-4, Karlsruhe, Germany.

(Uganda) Annual Report of the Game and Fisheries Department (For the Period 1st January, 1954, to 30th June, 1955), 143 pp., illus., printed, 6s. (84 U.S. cents). Government Printer, P. O. Box 33, Entebbe, Uganda, 1956. Includes a section on the fisheries of Uganda by regions: Lake Albert; Lakes George/Edward; and Lake Kyoga. Development in the fisheries has been rapid in some directions and steady in others. Fish production has been stepped up, new fisheries opened, dams and lakes stocked, improved equipment and methods introduced, and marketing facilitated. New craft have been demonstrated and training in boat building introduced, while a start has been made in stocking trout in the rivers of Mt. Elgon, Ruwenzori, and north Acholi. Fish farming is developing with rapidly increasing momentum and the Department's experimental and demonstration fish farm at Kajansi, which only two years ago was a block of dense tropical rain forest, already covers 20 acres of specially-constructed fry and production ponds, feeder furrows, and auxiliary buildings. Statistics are given for the 1954 catch of fishery products by months and species for Lake George and by species for Lake Edward and Kazinga Channel, as well as quantities and values of salted and smoked fish exports in 1954. Other sections of the report deal with game.

"An Undescribed Type of Migration in King Salmon, Oncorhynchus tshawytscha (Walbaum)," by Howard McCully, article, California Fish and Game, vol. 42, no. 3, July 1956, pp. 189-198, illus., printed. Department of Fish and Game, 926 J St., Sacramento 14, Calif.

The Use of Chemical Additives in Food Processing (A Report by the Food Protection Committee of the Food and Nutrition Board), Publication 398, 97 pp., printed, \$2. National Academy of Sciences--National Research Council, Washington 25, D.C., February 1956. The Food Protection Committee of the National Research Council has undertaken a study of the use of chemicals in foods for the purpose of evaluating the technological benefits arising from such use and of appraising the significance of associated public health problems. This report deals only with a survey of the extent of use and technological benefits of use of inten-

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tional chemical additives, including transient chemicals and naturally-occurring substances used as additives.

Various Species of Cod, by A. N. Svetovidov, Fauna of the U.S.S.R. New Series No. 34, vol. IX, no. 4, printed in Russian. Zoological Institute of Academy of Science of U.S.S.R., Moscow, Russia, 1948.

(Virginia) Laws of Virginia Relating to Fisheries of Tidal Waters, 1956 Cumulative Supplement, 20 pp., printed. (Reprinted from the 1956 Cumulative Supplement to the Code of Virginia of 1950.) Commission of Fisheries of Virginia, Newport News, Va., 1956.

"Walrus Hunt," by Edward Weyer, Jr., article, Natural History, vol. LXV, no. 1, January 1956, pp. 28-32, illus., printed, single copy 50 cents. American Museum of Natural History, New York 24, N.Y. Describes the annual walrus hunt of the Iglulik Eskimos which is one of the most hazardous pursuits in the arctic. The walrus hunt illustrates how vital and indispensable a weapon the harpoon is to any people who lives by sea hunting. This implement has permitted the survival of tribes in regions otherwise uninhabitable. This article describes the hunting techniques, the many hazards encountered, and the task of landing a walrus.

Washington Department of Fisheries, 64th Annual Report, 63 pp., illus., printed. Washington State Department of Fisheries, Seattle, Wash., May 1956. This report discusses the activities and objectives of the Department of Fisheries for the year 1954. Many details of the technical investigations have been omitted, since these results are now published in two new series of research papers and bulletins. Much statistical data has been published previously and also is mentioned only briefly; on the other hand,

greater emphasis has been placed on pictorial reporting. As another departure, an independent report has been selected for the introductory chapter--the report and recommendation of the Washington Legislative Interim Fisheries Committee to the 1955 Legislature. It reflects close contact with the problems and developments, fishery-wise, of the years since 1951 and with program needs for the years ahead. In addition, the report contains information on the big sockeye run of 1954, hatchery research and operations, stream and marine research, fishways and stream improvements, shellfish research, power dam and fish research, pollution research, fisheries patrol, and 1954 fisheries news log.

Work of All-Union Conference of Fisheries, Fisheries Management (Problems of Dynamical Enumeration of Fish, Fishing Prognoses, and Reproduction of Fish Stocks), 602 pp., illus., printed in Russian. Akademija Nauk SSSR., Ihtiologitseskaja Komissija, Moscow, Russia, 1953. Part II--Reports and Discussions on the Problems of Enumeration of Fish and Fishing Prognoses--contains, among others, the following reports: "Fluctuations in Numbers of Fish and Methods of Prediction of Fishing Results," by T. F. Dementjeva; "On the Causes of Fluctuations in the Amount of Pacific Salmon and the Problems in the Rational Use of Stocks," by R. S. Semko; and "Unknown Factors Relating to Enumeration of Herring," by A. N. Svetovidov. Part IV--Reports and Discussions on Problems of Biological Productivity of Waters--contains, among others, the following reports: "On Problems of Biological Productivity of the Sea and its Importance for Fisheries Economy," by V. A. Vodjanitskii; "Regarding Protection of Fish Food Resources in Sea Water," by L. A. Zenkevich; and "On the Ways of Increasing Fish Food Production in the White Sea," by V. V. Kuznetsov.

