



RECENT FISHERY PUBLICATIONS

FISH AND WILDLIFE SERVICE PUBLICATIONS

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

Number	Title
3756	- Fish Meal and Oil, January 1965, 2 pp.
3791	- Maine Landings, 1964 Annual Summary, 16 pp.
3795	- Florida Landings, 1964 Annual Summary, 12 pp.
3798	- North Carolina Landings, March 1965, 4 pp.
3802	- Maine Landings, February 1965, 4 pp.
3804	- Georgia Landings, 1964 Annual Summary, 9 pp.
3805	- Fish Meal and Oil, February 1965, 2 pp.
3807	- Rhode Island Landings, January 1965, 3 pp.
3811	- Fish Meal and Oil, March 1965, 2 pp.
3812	- Texas Landings, January 1965, 2 pp.
3813	- Maryland Landings, 1964 Annual Summary, 11 pp.
3814	- Texas Landings, February 1965, 2 pp.
3815	- New York Landings, March 1965, 4 pp.
3817	- North Carolina Landings, April 1965, 4 pp.
3819	- South Carolina Landings, 1964 Annual Summary, 6 pp.
3820	- Fish Meal and Oil, April 1965, 2 pp.
3822	- Florida Landings, April 1965, 3 pp.
3823	- Maine Landings, March 1965, 4 pp.
3825	- Virginia Landings, February 1965, 4 pp.
3827	- California Landings, March 1965, 4 pp.
	- Wholesale Dealers in Fishery Products, Maine, 1964 (Revised), 7 pp.

Fish Canning Fishery Products, 1963 (Revised):

FO1	- Salmon, 4 pp.
FO2	- Maine Sardines, 1 p.
FO2A	- Pacific Sardines, 1 p.
FO3	- Tuna, 2 pp.
FO3A	- Tunalike Fishes, 1 p.
FO4	- Mackerel, 1 p.
FO5	- Alewives, 1 p.
FO6	- Shad, 1 p.
FO7	- Fish and Shellfish Specialties, 6 pp.

- SL-109 - Caviar and Fish Roe, 3 pp.
- SL-110 - Oysters, 2 pp.
- SL-111 - Clam Products, 4 pp.
- SL-112 - Shrimp, 2 pp.
- SL-113 - Crab Meat, 2 pp.
- SL-116 - Food for Animals, from Marine-Animal Products, 4 pp.
- SL-118 - Groundfish Flakes, 1 p.
- SL-119 - Squid, 1 p.
- SL-120 - Anchovies, 1 p.

Firms Manufacturing Fishery Industrial Products, 1963 (Revised):

- SL-152 - Oyster Shell Products, 2 pp.
- SL-153 - Miscellaneous Industrial Fishery Products, 2 pp.
- 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.
- SL-160 - Menhaden Products, 2 pp.

Sep. No. 738 - Herring Fishery in Southeastern Alaska.

Sep. No. 739 - The Yellowfin Tuna Fishery in the Eastern Tropical Atlantic (Preliminary Study).

Sep. No. 740 - Equipment Note No. 17 - Long-Line Gear Improvement - Aluminum Crimping Sleeve Prevents Hook Damage by Electrolysis.

FL-572 - Author Index of Publications, Addresses, Translations, News Releases, Letters to Editors, and Letters to Industry - 1963; Bureau of Commercial Fisheries Branches of Economics, Technology, and the Branch of Reports at Seattle, by F. Bruce Sanford, Kathryn L. Osterhaug and Helen E. Platino, 16 pp., May 1965.

SSR-Fish. No. 504 - Studies of the Early Life History of Atlantic Menhaden in Estuarine Nurseries. Part I-- Seasonal Occurrence of Juvenile Menhaden and Other Small Fishes in a Tributary Creek of Indian River, Delaware, 1957-58, by Anthony L. Pacheco and George C. Grant, 32 pp., April 1965.

SSR-Fish. No. 499 - A Study of Ocean Fronts off Cape San Lucas, Lower California, by Raymond C. Griffiths, 60 pp., illus., Feb. 1965.

SSR-Fish. No. 507 - A Preliminary Bibliography with KWIC Index on the Ecology of Estuaries and Coastal Areas of the Eastern United States, by Robert Livingstone, Jr., 354 pp., May 1965.

SSR-Fish. No. 515 - Annual Fish Passage Report - Rock Island Dam, Columbia River, Washington, 1964, by Paul D. Zimmer and John H. Broughton, 25 pp., illus., April 1965.

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE REPORT IS AVAILABLE FROM THE U. S. BUREAU OF COMMERCIAL FISHERIES, 101 SEASIDE AVE., TERMINAL ISLAND, CALIF. 90731.

Views on Revision of the Japan-Soviet Fisheries Treaty, by Kisaburo Taguchi, Translation Series No. 16, 7 pp., processed, June 1965. (Translated from the Japanese, Rakusui Separate No. 636, Aug. 1964, 4 pp.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS NOT FOR GENERAL DISTRIBUTION BUT IS AVAILABLE FOR REFERENCE ONLY FROM THE BIOLOGICAL LABORATORY, BUREAU OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, P. O. BOX 3830, HONOLULU, HAWAII, 96612.

Some Thoughts on Oceanographic Conditions and Fishing Conditions in Palau Waters, 5 pp., processed, 1964. (Translated from the Japanese, Nanyo Suisan Joho--South Sea Fishery News--vol. 3, no. 1, 1939.)

THE FOLLOWING MARKET NEWS LEAFLETS ARE AVAILABLE FROM THE FISHERY MARKET NEWS SERVICE, U. S. BUREAU OF COMMERCIAL FISHERIES, RM. 510, 1815 N. FORT MYER DR., ARLINGTON, VA. 22209.

Number	Title
MNL- 9	- Fishery Developments in the Philippines, 1964, 4 pp.
MNL- 12	- Major Developments in Peru's Fishing Industry, 1964, 8 pp.
MNL- 26	- Taiwan Fisheries in 1964, 21 pp.
MNL- 82	- Fisheries of Ecuador, 1964, 8 pp.
MNL- 97(Supplement)	- Thailand's Fisheries, 20 pp.
MNL-100	- World Fishing Exhibition, London, May 27-June 1, 1965, 4 pp.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, May 1965, 15 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif. 90731.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish and prices for fish meal, oil, and solubles; for the month indicated.

California Fishery Market News Monthly Summary, Part II - Fishing Information, May 1965, 13 pp., illus. (U. S. Bureau of Commercial Fisheries, Tuna Resources Laboratory, P. O. Box 271, La Jolla, Calif. 92038.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the month indicated. Included is an article, "Temperate tuna forecast for 1965," prepared by the Tuna Forecasting Program.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, April 1965, 15 pp., (Market News Service, U. S. Fish and Wildlife Service, U. S. Customs House, 610 S. Canal St., Rm. 704, Chicago, Ill. 60607.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the month indicated.

Fishery and Oceanography Translations, no. 5, April 1965, 38 pp., processed. (Translation Program, Branch of Reports, Bureau of Commercial Fisheries, 2725 Montlake Blvd. E., Seattle, Wash. 98102.) Contains a list, "Translations of fishery and oceanographic literature, authors Ke-L," compiled by Paul T. Macy, and consisting of citations of literature in many languages.

Gulf Fisheries (Selected Areas) - 1964, by E. J. Barr, 40 pp., illus., June 1965. (Market News Service, U. S. Fish and Wildlife Service, 600 South St., New Orleans, La. 70130.) Summarizes the commercial landings of fish and shellfish for selected areas of the Gulf States of Florida (West Coast), Alabama, Mississippi, Louisiana, and Texas. The tables show landings for only the specific areas designated and cannot be interpreted as representing the total landings for a given state. However, the data do give an indication of general trends. Part I reports on developments and conditions in Gulf Coast fisheries during 1963 and gives a resume of the individual fisheries. Discusses the shrimp fishery in detail; production and market conditions for the oyster, blue crab, and finfish fisheries; as well as imports of fresh and frozen fish and shellfish. Part II includes statistical tables showing total fishery products landings; crab meat production by areas and months; and menhaden landings, and production of fish meal, oil, and solubles. It also gives data on fishery imports through Morgan City and the New Orleans, La., Customs District, Port Isabel-Brownsville and Houston, Tex., and Mobile, Ala., and LCL express shipments from New Orleans for 1964 by months and destination. Also included are tables showing monthly range of wholesale prices of fishery products on the New Orleans French Market; Gulf States oyster and shrimp packs, 1963/64 season and packs by season 1959/64; and fishery products market classifications in the Gulf Area.

Gulf of Mexico Monthly Landings, Production and Shipments of Fishery Products, May 1965, 13 pp., (Market News Service, U. S. Fish and Wildlife Service, Rm. 609, 600 South St., New Orleans, La. 70130.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans; wholesale prices of fish and shellfish on the New Orleans French Market; Gulf menhaden landings and production of meal, oil, and solubles; fishery imports at Mobile, Ala., Morgan City and New Orleans, La., Miami, Fla., and Houston, Port Isabel, and Brownsville, Tex.; and sponge sales; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, May 1965, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va. 23369.) Landings of food fish and shellfish and production of crab meat and shucked oysters for the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower 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 on fishery products and shrimp production; for the month indicated.

New York City's Wholesale Fishery Trade, 1964 (Includes Statistics and Marketing Trends), 44 pp., illus. (Market News Service, U. S. Bureau of Commercial Fisheries, 155 John St., New York, N. Y. 10038.) The first part of this annual summary discusses fish

products receipts, prices, and imports; fish meal, oil, and solubles prices; highlights of the 1964 season; shrimp supplies, prices, and imports; and canned tuna prices in the salt-water section of New York's wholesale Fulton Fish Market. The second section covers receipts, prices, and trends in the fresh-water fish market (Peck Slip Area). The final section contains statistical tables giving receipts of fish and frozen fish and shellfish by species, states and provinces, and transport methods, 1963-64; landings and ex-vessel prices at Fulton Market; imports through New York Customs District; frozen fishery products prices by months; and monthly shrimp imports by country.

55-Eastern Alaska Sea Surface Temperatures, 1959-
by Richard S. Williamson, Data Report 8, 2 microfiche cards, illus., April 1965, distribution limited. (Branch of Reports, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington, D. C. 20240.)

(55)Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, May 1965, 9 pp. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle, Wash. 98104.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl vessels reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and air-routes; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

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55-Shellfish Over the Coals, Test Kitchen Series
No. 4, 24 pp., illus., printed, 1965, 40 cents. Designed especially for those who enjoy cooking outdoors, this new booklet gives recipes for lobster, whitefish in foil, flounder with crab stuffing, broil trout, charcoal-broiled scallops, and many other tasty fishery delicacies. Home economists of the Bureau test-proved nearly 40 new recipes and cooking ideas which are illustrated in color in the booklet. It also has helpful suggestions for buying fish for quality and quantity, and tips on starting and maintaining the charcoal fire. This new publication is part of the continuing consumer education program being conducted in cooperation with the fishery industries of the United States. It should help many more consumers realize the economy and nutritive value of fish as an every day food.

MISCELLANEOUS PUBLICATIONS

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

55-Some research in South Africa, by G. G. Newman, The South African Shipping News and Fish-

ing Industry Review, vol. 20, no. 5, May 1965, pp. 93, 95, 97, 99, 101, illus., printed, single copy 30¢ (about US\$0.45). Thomson Newspapers, South Africa (Pty.) Ltd., P. O. Box 80, Cape Town, South Africa Republic.

AFRICA:

Fishery along Northwestern Africa, by K. Kukhorenko and Yu. Chuksin, 54 pp., printed in Russian, 1962. Knizhnoe Izdatel'stvo, Kaliningrad, U.S.S.R.

ALGAE:

"The significance of the diver's work when studying the distribution and amount of algae in the seas of the U.S.S.R.," by M. S. Kireyeva, Trudy Okeanograficheskoy Komissii, vol. 14, 1962, pp. 69-73. Clearinghouse for Federal Scientific and Technical Information, U. S. Department of Commerce, Port Royal and Braddock Rds., Springfield, Va. 22151.

"Sobre a composicao quimica de algumas especies de algas marinhas brasileiras" (On the chemical composition of some Brazilian species of marine algae), by Mario Queiroz Mandelli, article, Ciencia e Cultura, vol. 16, no. 3, 1964, pp. 281-284, illus., printed in Portuguese with English summary. Instituto "Nami Jaset" o Progresso para la Ciencia e Cultura, 667 Rua Senador Queiroz, Sao Paulo, Brazil.

"Vitamins in algae," by Akio Kanazawa, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, July 1963, pp. 713-731, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

ALMANAC:

The Air Almanac, 1965, September-December, Catalog No. D 213.7:965/3, 328 pp., illus., processed, June 1965, \$3.25. Naval Observatory, U. S. Department of the Navy, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) This issue of the almanac provides, in convenient form, the astronomical data required for air navigation during the period Sept. 1, 1965 to Jan. 1, 1966.

ANAESTHETICS FOR FISH:

A Guide to the Properties, Characteristics and Uses of Some General Anaesthetics for Fish, by Gordon R. Bell, Bulletin No. 148, 13 pp., printed, 1964, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada. Agents, described as general anaesthetics, which reversibly depress the sensory centers of the brain to various degrees and which finally eliminate reflex action, are being used more and more widely in fisheries biology. The author has prepared a chart which assembles the essential data on anaesthetics for fish to act as a guide for selection of the most appropriate anaesthetic for laboratory or field work. Eleven chemical anaesthetics are detailed. Information on each includes: manufacturer, expense, molecular weight, solubility, stability, toxicity to man, dosage required, immobilization and "righting" time periods, peculiar effects, suggested uses, and particular reaction involved. Topical and general bibliographies are included.

ANTIBIOTICS:

"Penetration and stability of biomycin in the tissues of cod and ocean perch under various conditions of thermal processing," by I. V. Khuzina, O. V. Karpicheva, and T. L. Gribanova, article, Rybnoe Khoz-

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iaistvo, vol. 40, no. 6, 1964, pp. 72-74, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia 17, Moscow B-140, U. S. S. R.

ANTIOXIDANTS:

"Influence of rancid oil on cooking. VII--Comparison of the resistance to oxidation of whale meat treated with various kinds of antioxidants or smoke and the antibacterial effect of these antioxidants," by Goro Kajimoto, article, Chemical Abstracts, vol. 60, May 25, 1964, Abstract No. 13797c, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

"The protection of marine products from their deterioration due to the oxidation of oil. X--Application of antioxidant preparation containing surface active agents. Part 2--The moment dipping method for protecting salted fishes," by Kenzo Toyama and Kuman Saruya, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 29, July 1963, pp. 675-681, printed. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

Articles from Chemical Abstracts; vol. 59, Nov. 11, 1963. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006:

"Stability of antioxidant in marine product. I--Stability of butylated hydroxyanisole," by Kenzo Toyama and Mikio Suzuki, Abstract No. 12090d.

"Use of antioxidants for prevention of oxidation of fat in Atlantic salt herring," by L. I. Yudina, Abstract No. 12091a.

AQUARIUMS:

Goldfish in Your Home, by Herbert R. Axelrod and William Vorderwinkler, 144 pp., illus., printed, 1958. Sterling Publishing Co., 122 E. 25th St., New York, N. Y. 10016.

BIBLIOGRAPHIES:

World List of Periodicals for Aquatic Sciences and Fisheries, FAO Fisheries Technical Paper No. 19, vol. 1, suppl. 2, 34 pp., processed in English, Spanish and French, Nov. 1964. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

BLACK SEA:

Fishes of the Black Sea, by A. N. Svetovidov, Identification Key to the Fauna of the U. S. S. R., No. 86, 560 pp., printed in Russian, 1964. Akademii Nauk SSSR, Moscow, U. S. S. R.

BLOOD OF FISH:

"Immunoelectrophoretic studies of red salmon (Oncorhynchus nerka) serum," by Kathryn K. Krauel and George J. Ridgway, article, International Archives of Allergy and Applied Immunology, vol. 23, 1963, pp. 246-253, printed. S. Karger, Arnold-Böckler Strasse 25, Basel, Switzerland.

BOTULISM:

Botulism--Proceedings of Symposium, Cincinnati, Ohio, January 13-15, 1964, ed. by K. H. Lewis and K. Cassel, Jr., 327 pp., illus., printed, Dec. 1964.

Public Health Service, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio 45226.

"Clostridium botulinum type E in smoked fish," by Donald A. Kautter, article, Journal of Food Science, vol. 29, Nov.-Dec. 1964, pp. 843-849, printed. Institute of Food Technologists, 510-522 No. Hickory, Champaign, Ill. 61823.

CANADA:

Année 1964 Pêcheries Maritimes (Season 1964 Maritime Fisheries), 38 pp., illus., processed in English and French. Quebec Bureau of Statistics, Quebec City, Quebec, Canada. Contains tables showing the quantity and value of landings during 1963 and 1964 by species, by counties and by regions, with special attention to landings of cod and herring.

"Availability of fish," by G. F. M. Smith and W. E. Ricker, article, Federal-Provincial Conference on Fisheries Development, January 20-24, 1964, Canadian Fisheries Report No. 3, pp. 25-29, printed 1964. Department of Fisheries, Ottawa, Canada.

Journal of the Fisheries Research Board of Canada, vol. 22, no. 2, March 1965, 389 pp., illus., printed single copy C\$2. Queen's Printer and Controller Stationery, Ottawa, Canada. Contains, among other things, these articles: "Effects of light on growth of oyster mussels, and quahaugs," by J. C. Medcof and C. J. Kerswill; "Nucleotides and related compounds, sugars, and homarine in shrimp," by H. L. A. Tarr and A. G. Comer; "A comparison of catches by 3- and 4-inch rings on offshore scallop drags," by Neil Bourne; "Effect of photoperiods on the behavior of juvenile Atlantic salmon (Salmo salar L.) in vertical and horizontal light gradients," by A. T. Pinhorn and C. W. Andrews; "Survival of lobsters, Homarus americanus, out of water," by D. W. McLeese; "Study on the quality of Newfoundland cod. 10--Effect of some commercial freezing rates on the frozen and stored quality of trap cod," by W. A. MacCallum and others; "Preliminary trials of a tag for salmon and lobsters," by D. J. Scarratt and P. F. Elson; "Migrations of harp seals Pagophilus groenlandicus (Erxleben) in the Northwest Atlantic," by D. E. Seegant; "Trends in catch, age, and size of cod from the commercial longline fishery at Bonavista, Newfoundland, 1952-62," by A. M. Fleming; "Effect of DDT on temperature selection by young Atlantic salmon, Salmo salar," by D. M. Ogilvie and J. M. Anderson; "Food and growth of fishes. I--A growth curve derived from experimental data," by J. E. Paloheimo and L. M. Dickie; "Life history and ecology of American plaice (Hippoglossoides platessoides F.) in the Magdalen Shallows," by P. M. Powell and "Canadian Atlantic salmon recaptured near Greenland," by R. L. Saunders, C. J. Kerswill and P. F. Elson.

CANNING:

"Las conservas de 'pescado al natural'" (The canning of "fish au naturel"), by Ives Le Berre, article, Industria Conservera, vol. 31, no. 308, Feb. 1965, pp. 36-39, printed in Spanish, single copy 25 ptas. (at US\$0.40). Union de Fabricantes de Conservas de Galicia, Calle Marques de Valladares, 41, Vigo, Spain.

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

Struvite in canned products. VII--Minimum amount of sodium hexametaphosphate to prevent struvite formation," by Haruo Yamade, article, Chemical Abstracts, vol. 58, May 25, 1963, Abstract No. 11895f, printed. American Chemical Society, 1155 16th St. N.W., Washington, D. C. 20006.

CARIBBEAN:

Gulf and Caribbean Fisheries Institute, Proceedings of the 17th Annual Session, Runaway Bay, Jamaica, November 1964, edited by James B. Higman, 86 pp., illus., printed, May 1965. Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami, Fla. 33149. Contains papers presented at the 1964 meeting of the Gulf and Caribbean Fisheries Institute. The papers are grouped according to session at which they were read: high seas fishing; shrimp; fishery; and Caribbean. The first day's session included: "Legislation for fisheries in the 19th Congress," by William C. Foster; "The Japanese-Soviet challenge to world fisheries," by Georg Borgstrom; "Legislation on oceanography and its implications for fisheries," by Robert B. Abel; and "International fisheries management: A plan for action," by James B. Crutchfield.

CRAB:

Preliminary Observations on Commercial Breeding of Indian Carps under Controlled Temperature in the Laboratory, by K. H. Alikunhi and others, Inland Fisheries Research Institute Bulletin No. 3, 19 pp., illus., printed, 1964. Inland Fisheries Research Institute, Barrackpore, India.

CASPIAN SEA:

Fishes of the Caspian Sea, by E. N. Kazanchev, 179 pp., printed in Russian, 1964. Rybnoe Khoziaistvo, Krasnosel'skaia 17, Moscow B-140, U. S. S. R.

CHEMICAL CONTENT:

Coloring of fish. XI--Effects of heating on the levels of sugar, phosphate, arginine and lysine in fish," by Funio Nagayama, Hiroshi Hiraide, and Kimihiro Ino, article, Nippo Suisan Gakkaishi, vol. 28, 1962, pp. 1188-1191, printed in Japanese. Japanese Society of Scientific Fisheries, Shiba-Kaigandori 6, Minato-ku, Tokyo, Japan.

CLAMS:

Functional Morphology of the Fourth Fold of the Mantle of the Northern Quahog, MERCENARIA MERCENARIA (L.), by Robert E. Hillman, Contribution No. 244, 5 pp., illus., printed. (Reprinted from The Journal of the Elisha Mitchell Scientific Society, vol. 80, no. 1, May 1964, pp. 8-12.) Natural Resources Institute, University of Maryland, Solomons, Md.

A new hydraulic rake for soft-shell clams," by J. C. Redcof and J. S. MacPhail, article, Proceedings of the National Shellfisheries Association for 1962, vol. 53, 1964, pp. 11-31, printed. National Shellfisheries Association, Virginia Institute of Marine Science, Gloucester Point, Va.

The occurrence of the brackish water clam Rangia cuneata, in the Potomac River, Maryland," by H. T. Metzner and K. G. Drobeck, article, Chesapeake Science, vol. 5, no. 4, 1964, pp. 209-212, illus.,

printed. Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Solomons, Md.

COD:

"Thawing blocks of frozen cod in air and in water," by J. H. Merritt and A. Banks, article, Bulletin of the International Institute of Refrigeration, Annex 1964-1, pp. 65-80, illus., printed. International Institute of Refrigeration, 177 Blvd. Malesherbes, Paris 17, France.

COD AND HADDOCK:

"Scientists assess cod and haddock stocks--need for control in Barents Sea," article, The Fishing News, no. 2715, June 18, 1965, p. 9, printed, single copy 9 d. (about US\$0.10). Arthur J. Heighway Publications Ltd., 110 Fleet St., London EC4, England. Reports on the discussions of cod and haddock stocks at the May 1965 meeting of the North East Atlantic Fisheries Commission in Moscow.

CONSERVATION:

Teacher Training--Key to Conservation's Future, 4 pp., illus., printed. (Reprinted from Maryland Conservationist, vol. 16, no. 4, July-Aug. 1964.) Department of Game and Inland Fish, State Office Bldg., Box 231, Annapolis, Md.

CONTAINERS:

"El envase de aluminio laqueado para conservas de pescado (Continuacion)" (The aluminum lacquered can for preserved fish--continued), by M. Martinez Esteban, article, Informacion Conservera, vol. 13, no. 134, Feb. 1965, pp. 63-64, 65-66, illus., printed in Spanish, single copy 30 ptas. (about US\$0.50). Informacion Conservera, C6lon, 62, Valencia, Spain.

"Primenenie polimernyh plenok pri zamorazivanii i hranenii ryby (Utilization of polymer films when freezing and storing fish)," by G. S. Konokotin and L. P. Zujkova, article, Kholodil'naiia Tekhnika, no. 1, 1964, pp. 42-44, printed in Russian. Kholodil'naiia Tekhnika, c/o Four Continent Book Corp., 822 Broadway, New York, N. Y. 10003.

CRABS:

"River crab meat," by E. M. Malevannaya, article, Chemical Abstracts, vol. 61, Aug. 3, 1964, Abstract No. 3619f, printed. American Chemical Society, 1155 16th St. N.W., Washington, D. C. 20006.

CRUSTACEANS:

Biology of Abundant and Common Species of Crustaceans in the Barents and White Seas, by V. V. Kuznetsov, 242 pp., printed in Russian, 1964. "Nauka" (Leningradskoe Otdelenie), Leningrad, U. S. S. R.

ECOLOGY:

Effects of Winter Water Conditions on Fifteen Species of Captive Marine Fishes, by Frank J. Schwartz, Contribution No. 246, 11 pp., printed (Reprinted from The American Midland Naturalist, vol. 71, no. 2, 1964, pp. 434-444.) Natural Resources Institute, University of Maryland, Solomons, Md.

Investigations of Climate and Oceanographic Factors Influencing the Environment of Fish, by Dean Franklin Bumpus, Ref. No. 64-47, 16 pp., illus., printed,

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

1964. Woods Hole Oceanographic Institution, Woods Hole, Mass.

ELECTRICAL FISHING:

"Electronic trawl ready for marketing," article, *Fishing Gazette*, vol. 82, no. 6, June 1965, p. 54, 76-77, illus., printed, single copy 50 cents. Fishing Gazette Publishing Corp., 461 Eighth Ave., New York, N. Y. 10001.

ENZYMES:

"Shellfish thiaminase," by Takeshi Sato and Takashi Kawasaki, article, *Chemical Abstracts*, vol. 57, Nov. 26, 1962, Abstract No. 14159d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

ESTUARINE ECOLOGY:

"O svyazi velichiny akvatorii s nekotorymi osobennostyami fauny solonovatykh vod" (Relationship between the size of a body of brackish water and some characteristics of its fauna), by L. L. Chislenko, article, *Okeanologiya*, vol. 4, no. 3, 1964, pp. 528-534, illus., printed in Russian. *Okeanologiya*, Akademiia Nauk SSSR, Moscow, U. S. S. R.

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Code of Federal Regulations, Title 50--Wildlife and Fisheries (Revised as of January 1, 1965), 166 pp., printed, 1965, 60 cents. Office of the Federal Register, National Archives and Records Service, General Services Administration, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

FILM STRIPS:

Instructional-educational picture-stories of numerous aspects of human knowledge are available as color slide sets and film strips. Each set of slides is packaged in a durable cardboard container, labeled for ease of identification. Each slide is identified by title and code number, making it easy to select and project specific slides correlated to the day's lesson. Each filmstrip, using color photographs, is typically designed for use in whole or in part. Text frames itemize concepts, vocabulary frames point out new words, simplified diagrams and discussion questions help clarify ideas. Several are on the sea, lakes, and streams. Society of Visual Education, Inc., 1345 Diversey Parkway, Chicago, Ill. 60614:

Algae and Fungi, S53S, Natural Science series, for Jr.-Sr. High Schools, set of 10 slides, \$4.50.

Introduction to Algae, 448-2, The Microscope and Its Use series, for Jr.-Sr. High Schools, 35 captioned frames, \$5. How a specimen is prepared for investigation and how the nucleus of the algae cell is made visible under the microscope.

Let's Explore a Pond, 423-4, Exploring the World of Nature series, for Intermediate-Jr. High Schools, 50 captioned frames, \$6. Shows how ponds are formed, how they may fill to form marshes and swamps. Illustrates plant and animal life and their growth and activity in summer and winter.

Let's Explore a Stream, 423-5, Exploring the World of Nature series, for Intermediate-Jr. High Schools, captioned frames, \$6. Illustrates plants and animals in various habitats formed by pools, riffles, and waterfalls; how moving water works for man; and how thoughtless pollution of streams destroys plant and animal life.

Songs of the Sea, 681-1R, Our American Heritage or Folk Music Series, for Intermediate-Jr. High Schools, 46 frames with 33 $\frac{1}{3}$ r. p. m. record (coupled with Songs of the Cowboy), both filmstrips with record \$15. How singing eased the labor and loneliness of seafaring men in the days of sail--"Haul Away, Joe"; "Blow the Man Down"; "Rio Grande"; and "Shenandoah."

Water Conservation Today, 433-3, Conservation for Today's America series, for Intermediate-Jr. High Schools, 39 frames with Teacher's Guide, \$6. Study of remedies for water problems--protection of watersheds, efficient use of water, prevention of water pollution.

Work of the Sea, 443-4, Our Ever Changing Earth series, for Intermediate-Jr. High Schools, 45 captioned frames, \$6. Some types of coasts, waves and currents, shore features caused by erosion and deposition. Illustrates terms such as stacks, bars, spits, fiords, and lagoons.

FISHERY EDUCATION:

"Goda erfarenheter från den Svensk-Tunisiska fiskarskolan" (Good experiences from the Swedish-Tunisian fishery school), by Georg Aberg, article, *Svensk Vastkustfiskaren*, vol. 35, no. 8, April 25, 1965, pp. 124-126, illus., printed in Swedish. Svenska Vastkustfiskarnas Centralforbund, Ekonomituskottet P. O. Box 1014, Goteborg 4, Sweden.

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FISH FARMING:

Solution of Some Technical Problems in Fish Farming, Manual of Methods, by D. A. Kulik, 23 pp., printed in Russian, 1964. Knizhnoe Izdatel'stvo, Kaliningrad, U. S. S. R.

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FISHING LIMITS:

"La convention de Londres de 1964 sur les pêches et les droits acquis dans la zone des 6 à 12 miles: la théorie à la mise en oeuvre" (The 1964 London Convention on Fisheries and the rights acquired in the 6-12-mile zone: From theory to achievement), by A. Boyer, article, *La Pêche Maritime*, vol. 4, no. 1046, May 1965, pp. 311-312, printed in French, single copy 14 francs (US\$2.85). *La Pêche Maritime*, 190, Blvd. Haussmann, Paris 8^e, France.

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"Research on improvement of fishing methods," by R. Martin, article, Federal-Provincial Conference on Fisheries Development, January 20-24, 1964, Canadian Fisheries Report No. 3, printed, 1964. Department of Fisheries, Ottawa, Canada.

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"The effect of heat on the amino acid, fatty acid and vitamin composition of fish meal," by V. C. Jönsson and K. Weidner, article, Acta Agriculturae Scandinavica, vol. 14, 1964, p. 87, printed in English, French, and German, single copy 20 Kroner. Scandinavian Agricultural Research Workers' Association, Royal Swedish Academy of Agriculture, Box 10, office Hovslagargaten 2III, Stockholm C., Sweden.

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"Investigation of the nitrogen requirements of the growing pig. I--The utilisation of fish meal at different levels," by A. Rerat and Y. Henry, Annales de Zootechnie, 1964, p. 5.

"Measurement of the absorption of oxygen by fish tissues. Application to their stabilization by means of antioxidants," by J. Flanzky and others, vol. 11, Annales de Zootechnie, p. 263.

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"Protein quality of feeding-stuffs. 3--Comparative assessment of the protein quality of three fish meals given to growing pigs," by R. S. Barber and others, article, British Journal of Nutrition, vol. 18, 1964, p. 545, printed. Cambridge University Press, 32 E. 57th St., New York, N. Y. 10022.

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Articles from Journal of the American Oil Chemists' Society, vol. 41, 1964, American Oil Chemists' Society, 35 E. Wacker Dr., Chicago 1, Ill.

"Fatty acid composition of oils from 21 species of marine fish, freshwater fish and shellfish," by E. H. Gruger, Jr., R. W. Nelson, and M. E. Stansby, pp. 662-667.

"Synthesis of triglycerides from fish oil fatty acids," by L. W. Lehman and E. J. Gauglitz, Jr., p. 533.

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"A note on the relative nutritive value and the total and 'available' methionine, tryptophan and histidine in some fish flours," by H. N. De, article, Pakistan Journal of Scientific and Industrial Research, vol. 6, 1963, p. 299, printed. Pakistan Council of Scientific and Industrial Research 3/4/D/VI, Nazimabad, Karachi, Pakistan.

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Reprints from Anales de Bromatologia, vol. 16, 1964, in Spanish with English summaries. Sociedad Espanola de Bromatologia, Ciudad Universitaria (Edificio Facultad de Farmacia), Madrid, Spain:

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Sobre el Valor Biologico y Otros Indices Nutritivos de las Proteinas de SARDINA PILCHARDUS, TRACHURUS TRACHURUS, BRAMA RAI y MERLUCCIVUS MERLUCCIVUS, (On the Biological Value and Other Nutritive Indices of the Proteins of Sardina pilchardus, Trachurus trachurus, Brama rai and Merluccius merluccius), by J. Larralde, J. Bello and C. Rodriguez, pp. 307-321, illus. Results of studies of digestibility of four types of fish flour or fish protein concentrate.

Articles from International Association of Fish Meal Manufacturers News Summary, no. 16, Jan. 1965, processed. International Association of Fish Meal Manufacturers, 70 Wigmore St., London W1, England.

"War on malnutrition," pp. 6-18, illus. (Reprinted from Pesca, Sept. 1964, pp. 14-21.) Reports on the value of fish flour as a major, inexpensive protein supplier. Discusses the challenge to fish industrialists to investigate and develop fish protein concentrate as a primary weapon in the war against malnutrition, particularly in underdeveloped nations.

"Fish flour in Peru," by Steve Harrison, pp. 18-21. (Reprinted from Andean Air Mail and Peruvian Times, Nov. 13 1964.) A report on the verification, especially in Peru, of fish flour as an edible commodity. This news item is designed to throw light on a subject which, in spite of its vital importance, the general public is inadequately informed.

"Edible fish flour (F. P. C.) now produced by pilot of two companies in Peru," pp. 22-24, processed in English with resumes in French, German and Spanish. (Reprinted from Peruvian Times, Nov. 27, 1964.) Discusses fish flour as a possible answer to Peru's great need to increase per capita protein consumption.

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"The not-so-silent sea," by Frank T. Dietz, article, Maritimes, vol. 9, no. 2, spring 1965, pp. 10-12, illus., printed. Graduate School of Oceanography, University of Rhode Island, Kingston, R. I. 02881.

FISHWAYS:

"Pitlike fish ladder," by V. P. Kulikov, article, Rybnoe Khoziaistvo, vol. 40, no. 6, 1964, pp. 85-86, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia 17, Moscow B-140, U. S. S. R.

FLORIDA:

(Florida Board of Conservation) Second Biennial Report, 1963-1964, 105 pp., illus., printed, March 1965. Division of Administration, Florida Board of Conservation, W. V. Knott Bldg., Tallahassee, Fla. Summarizes activities of the Board of Conservation divisions of Administration, Salt Water Fisheries, Water Resources and Conservation, Waterways Development, Geology, and Beaches and Shores during calendar years 1963 and 1964. Commercial fishing is one of the State's great industries, with an annual gross income of more than \$100 million, involving 150,000 people engaged in taking, processing, transporting and marketing fishery products. Division of Salt Water Fisheries accomplishments included enforcement work and research--red tide studies, oyster rehabilitation and depuration, fish tagging report on accidental introduction of piranha into Florida waters, and other exploratory and biological activities. Marketing and production assistance promotion of fishery products were highly emphasized during the biennium. The Legislature provided for the use of profits from oyster shell sales previously earmarked for biological research in the financing of a market promotion program for the seafood industry. Included in the report are statistical data on commercial fishing licenses, oyster leases granted, and spiny lobster and stone crab landings. Some other activities of the Board were dumping of auto bodies offshore to form artificial reefs, dredging and maintenance of waterways and conservation of fresh-water resources. The newly-created Division of Beaches and Shores enforced provisions of the law relating to preservation, conservation, and restoration of beaches and shores including control of beach erosion and protection against hurricane and storm damage.

Summary of Florida Commercial Marine Landings, 1963, 23 pp., processed, Nov. 1964. Board of Conservation, Salt Water Fisheries Division, Marine Fisheries Research, Tallahassee, Florida.

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Food and Agriculture Organization has published reports describing that Agency's activities under the Expanded Program for Technical Assistance for developing the fisheries of many countries. These reports have been processed only for limited distribution to governments, libraries, and universities. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy:

Informe al Gobierno de Nicaragua sobre Mejoramiento de las Tecnicas de Pesca en el Lago de Managua y Otras Aguas Continentales, 1961-62 (Report to the Government of Nicaragua on Improving Fishing Techniques in Lake Managua and Other Inland Waters, 1961-62), by Dietmar R. Riedel, EPTA Report No. 1915, 59 pp., illus., in Spanish, June 1964.

Report au Gouvernement du Mali sur l'Amelioration de l'Industrie du Traitement du Poisson (Report to the Government of Mali on Improving the Fish Processing Industry), by Moustafa Aref, EPTA Report No. 1914, 57 pp., illus., in French, July 1964.

Proceedings of the World Scientific Meeting on the Biology of Tunas and Related Species, FAO Fisheries Reports No. 6, vol. 4, 427 pp., processed in French, Spanish, and English, 1964. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

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Following articles are from *La Pêche Maritime*, no. 1044, April 1965, printed in French, single copy 14 francs (US\$2.85). *La Pêche Maritime*, 190, Blvd. Haussmann, Paris 8^e, France:

Conference de M. Jacques Huret sur l'adaptation de l'industrie de la pêche à l'évolution économique sociale des grandes villes" (A commentary from Jacques Huret on the adaptation of the fishing industry to the social and economic evolution of large cities), pp. 236-238, illus.

"1965 sera une année difficile mais 1966 doit marquer le début d'une période nouvelle" (1965 will be a difficult year, but 1966 could mark the beginning of a new era), by Jean Morin, pp. 232-235.

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From freeze-drying services means to increased yields," by W. L. Porter and W. L. Root, article, *Meat Packer*, vol. 133, no. 29, June 1964, p. 32, single copy 50 cents. Vance Publishing Co., 1000 N. Monroe St., Chicago, Ill. 60603.

"Freeze vacuum drying of marine products. III--Test on salmon meat," by Kiichiro Kobayashi and Shuzo Igarashi, article, *Bulletin of the Faculty of Fisheries, Hokkaido University*, vol. 14, no. 4, 1964, pp. 209-214, printed. Faculty of Fisheries, Hokkaido University, Kameda-Machi, Hakodate, Japan.

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Effect of Polyphosphates and Other Salts on Drip Loss and Oxidative Rancidity of Frozen Fish, by J. W. Boyd and B. A. Southcott, 15 pp., printed. (Reprinted from the *Journal of the Fisheries Research Board of Canada*, vol. 22, no. 1, 1965, pp. 53-67.) Queen's Printer and Controller of Stationery, Ottawa, Canada.

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Control and Measuring Gear on Board Vessels, by P. I. Bendik and A. M. Lapides, 272 pp., printed in Russian, 1964. Voenizdat, Moscow, U.S.S.R.

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"Exhibition of equipment used by fish enterprises," by V. Solov'eva, no. 6, pp. 90-91.

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"Centrifugal method of isolation of fat from the flesh of salted herring," by A. A. Lyubavina, p. 75.

"Mechanized herring line on the floating factory Skala," by K. I. Karpov, pp. 65-68.

"Search for herring with commercial vessels operating in the Atlantic," by S. Edemskii, p. 44.

ICELAND:

"Icelandic fishing vessels. Part Two," by Hjalmar R. Bardarson, article, Iceland Review, vol. 3, no. 1, 1965, pp. 19, 21, 23-24, illus., printed, single copy 50 Kr. (about US\$1.15). Iceland Review, P.O.B. 1238, Reykjavik, Iceland. Covers in detail the 4 types of Icelandic vessels in the fisheries--open motor boats, decked steam and motor vessels under 100 gross registered tons (short), decked vessels over 100 GRT, and deep-sea trawlers. All vessels of 150-350 GRT are built of steel and are equipped for both long-lining and purse-seining for herring and cod, with a power-block. Safety features required by the Icelandic Directorate of Shipping include vessel stability provisions, particularly for purse-seiners; water-tight closing of a full-strength poop on the after main deck; and a complete set of stability calculations for each newly constructed vessel. Steering efficiency, providing for maneuvering the vessel in a tight circle when shooting the net, is increased in purse-seiners by the use of large rudder areas, and experimentally by an active-rudder and a bow-thruster. Trawlers are not used as frequently as

formerly since their catches have been poor in the past few years. Fishing vessels are in a continual state of development; the trend is to further mechanize fishing and to make it safer by the use of better equipped vessels, concludes the author.

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A Biological Investigation of the Fishes of Lake Chautauqua, Illinois, by William C. Starrett and Arnold W. Fritz, Illinois Natural History Survey Bulletin, vol. 29, art. 1, 108 pp., illus., printed, March 1965. Illinois Natural History Survey, Natural Resources Bldg., Urbana, Ill.

1963 Farm Pond Survey, by Ora M. Price, Special Fisheries Report No. 5, 20 pp., processed, October 1964. Illinois Department of Conservation, Division of Fisheries, Springfield, Ill.

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"A cheese-like product from fish," by M. A. Krishnaswamy and others, article, Journal of Food Science and Technology, India, vol. 1, no. 1, 1964, p. 1, printed. Association of Food Technologists, Central Food Technological Research Institute, Mysore 2, India.

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INSULIN:

"Isolation of insulin from the fish, Lophius piscatorius by gel filtration," by Rene E. Humbel, article, Chemical Abstracts, vol. 59, Oct. 28, 1963, Abstract No. 10415, printed. American Chemical Society, 1155 16th St. N.W., Washington, D. C. 20006.

INTERNATIONAL AGREEMENTS:

Fisheries, King Crab, Agreement between United States and Union of Soviet Socialist Republics, Signed Washington, Feb. 5, 1965 (Entered into Force Feb. 5, 1965). Treaties and Other International Acts Series, No. 5111, 11 pp., printed in Russian and English, 1965, 10 cents. Department of State, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

IRRADIATION PRESERVATION:

Current Status & Commercial Prospects for Radiative Preservation of Food, TID 21431, 183 pp., illus., printed, Jan. 1965, 55 cents. Business & Defense Services Administration, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) The preservation of food by ionizing radiation is fast approaching com-

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socialization, and within the decade irradiation will be recognized as a major preservation technique, concludes this report prepared for the Atomic Energy Commission. Of the 28 products covered in this study in connection with 6 irradiation processes, including marine products) were found to have excellent prospects for domestic or international markets. The study also indicates the action and magnitude of changes or problems which may affect other food processing industries as adoption of the radiation technique increases. It includes an analysis and discussion of international aspects, Government regulations, consumer reaction, and other factors involved in the development of the irradiation preservation industry. It states that the benefits of this new method will be felt in areas not reached by other processes. Irradiation preservation is expected to replace some present methods of preservation and to be used in combination with other processes. The benefits anticipated include elimination of food-borne hazards to health; stability of new and more convenient foods; improvement in food quality; savings from reductions in spoilage; and market expansion as the result of increases of shelf life and shipping distances. The results of all the efforts and expenditures by Government during the past decade will depend on development of commercial production capacities by private firms in the next decade, states the report. This is the first of a series which will include analysis of the economics and logistics of feeding irradiated foods to soldiers.

Determination of the Wholesomeness of Irradiated Pasteurized Clams. Final Summary, June 1963-February 1964, by E. F. Reber, TID 21226, 77 pp., processed, 1964. Technical Information Division, U. S. Atomic Energy Commission, Washington, D. C. 20545.

Irradiated foods laws: meeting in Rome, April 21-22, 1964, article, Nuclear Engineering, vol. 9, 1964, pp. 217, printed, Temple Press Ltd., Bowling Green Lane, London EC1, England.

Irradiation des Aliments (Food Irradiation), vol. 5, Jan.-March 1965, 25 pp., illus., processed. European d'Information pour l'Irradiation des Aliments, B. P. No. 6, Gif-sur-Yvette (S.-et-Oise), France. (For sale by the O.E.C.D. Mission, 223, 1346 Connecticut Ave. NW., Washington, D. C. 20006.) Some of the articles are: "Data on wholesomeness studies--a progress report," by J. Las Raica Jr.; "Studies on food irradiation in duck"; and "Irradiation extends storage life of duck (*Harpodon nehereus*)."

Reports prepared by Division of Technical Information Extension, U. S. Atomic Energy Commission, Oak Ridge, Tenn. (For sale by the Clearinghouse for Federal Scientific and Technical Information, Department of Commerce, Port Royal and Woodstock Rds., Springfield, Va. 22151.):

Effect of Irradiation on the Microbial Flora Surviving Radiation Pasteurization of Seafoods--Final Summary, May 1963-April 1964, by R. O. Sinnhuber and J. D. Lee, SAN-100-1, 63 pp., illus., processed, Nov. 1964, \$3. This annual report contains results of research conducted by the Department of Food Science

and Technology, Oregon State University. Objectives of the studies are to: (1) examine the shift in the natural microbial flora (including yeasts and molds) due to the variation in irradiation resistance and to determine (a) the spoilage of those organisms, (b) their pathogenicity; (2) determine whether any of the organisms which survive are mutants, and their role, if any, in spoilage; and (3) investigate the complementary effects of approved food additives such as nitrites and other radiolethal agents. Dover sole (*Microstomus pacificus*) fillets were chosen as the first fishery product to be investigated. The storage life for a given radiation dose, states the report, depends on the initial number and types of organisms. Therefore, the radiation pasteurization can be more successful when the microbiological quality of the fresh fish samples is controlled. The shelf life of irradiated Dover sole can be further extended by the use of 0.1 percent sodium benzoate as an additive.

Radiation Pasteurization of Foods--Summaries of Accomplishment, Presented at Fourth Annual Contractors' Meeting, October 21-22, 1964, Conf-641002, 207 pp., processed, 1965, \$6. Some of the articles are: "Simultaneous radiation heating treatment of haddock," by J. T. R. Nickerson; "Study of radiation pasteurized products," by L. J. Ronsivalli; "Radiation pasteurization of Pacific crab and flounder," by D. Miyauchi; "Effects of ionizing radiation on lipids of fish," by M. E. Standsby; "Radiation pasteurization of Gulf shrimp and oysters," by Arthur F. Novak; "Irradiation preservation of fresh water fish," by H. L. Seagran; "The effect of radiation on the microbial flora surviving irradiation pasteurization of seafoods," by R. O. Sinnhuber; "Extractive studies on packaging materials to be used with irradiated foods," by E. A. Garlock; "Current status and prospects for the commercialization of radiation preservation of food," by J. M. Schaffer; and "The determination of the wholesomeness of irradiation pasteurized clams," by E. F. Reber. Also includes articles on: "The effects of gamma rays on haddock and clams inoculated with *Clostridium botulinum*, Type E," by J. T. R. Nickerson; "A study of the effect of ionizing radiation on resistance, germination and toxin synthesis of *Clostridium botulinum* spores, Types A, B and E," by J. T. Graikoski; "Growth characteristics of Type E, *Clostridium botulinum* in the temperature range of 34° to 50° F.," by W. P. Segnor; "The significance of *Clostridium botulinum* Type E in the application of radiation-pasteurization to Pacific crab meat and flounder," by M. W. Eklund; "Examination of Gamma irradiated Gulf shrimp for *Clostridium botulinum* and Type E toxin," by R. M. Grodner; "Basic microbiological and biochemical factors in radiation pasteurization of marine products," by A. M. Dollar; and "Basic radiation research," by L. J. Ronsivalli.

Articles from Nucleonics Week, vol. 5, no. 35, 1964. McGraw-Hill Book Co., 330 W. 42nd St., New York, N. Y. 10036:

"F. D. A. has approved 9 packaging materials for irradiated foods," p. 4.

"The marine products development irradiator will be dedicated," p. 4.

Abstracts from Nuclear Science Abstracts, vol. 18, 1964. U. S. Atomic Energy Commission, Washington,

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D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402):

"Codfish and sweet potato--Report of observations on nutrition: radiation and sterilization of foods for Auburn University, Auburn, Alabama," by M. A. Ross, Abstract No. 11640.

"Corn and tuna diet--Report of observations on nutrition: radiation and sterilization of foods for Hazelton Laboratories, Falls Church, Virginia," by M. A. Ross, Abstract No. 11641.

ITALY:

Market Factors in Italy, by Fernande Lavallee, OBR 65-23, 12 pp., printed, April 1965, 15 cents, Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

JAPAN:

Fisheries Statistics of Japan, 1963, 65 pp., illus., processed, March 1965. Statistics and Survey Division, Ministry of Agriculture and Forestry, 1, 2 chome, Kasumigaseki, Chiyoda-ward, Tokyo, Japan. Contains Japanese production statistics by type of fishery and species, 1963. Also data on fisheries enterprises, vessels, processing, and foreign trade. Types of fisheries include marine--trawling, salmon drift-net, king crab gill-net, tuna long-line, skipjack pole-and-line, purse seine, Pacific saury dipnet, and set-net; aquaculture--pearl, oyster, seaweed; and whaling. The Annual Report of Catch Statistics on Fishery and Aquaculture, issued yearly until 1963, will be published henceforth in 2 separate volumes; one written in Japanese for domestic users and this report in English for foreign users.

Bulletin of the Japanese Society of Scientific Fisheries, vol. 31, 1965, printed in Japanese with English abstracts. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba Kaigandori 6, Minato-ku, Tokyo, Japan.

_____, no. 1, Jan., 107 pp., illus. Contains, among others, articles on: "Studies on the resources of the jack mackerel, *Trachurus japonicus* (Temminck et Schlegel), in the East China Sea. II--Fishing efficiency of purse seiner of one-boat and two-boat operation types," by F. Mitani and E. Ida; "Studies on flavor of 'katsuobushi.'" I--On the acidic, basic and phenolic components, II--Relations between flavors of 'smoke' and of 'katsuobushi,'" by K. Nishibori; "Studies on fish-solubles. II--Nutritive value of commercial fish-solubles in rats and mice," by T. Onishi, S. Murayama, and T. Kaneda; "Studies on the biological formation of formaldehyde and dimethylamine in fish and shellfish. V--On the enzymatic formation in the pyloric caeca of Alaska pollock," by K. Yamada and K. Amano (in English); and "Bacterial permeability of tin-sealed sausage casing," by M. Nakaide and others.

_____, no. 2, Feb., 81 pp., illus. Some of the articles are: "Age composition of Atlantic tunas related with distribution of water temperature and distance from land. I--Yellowfin tuna; II--Albacore," by J. Nakagome and others; "Studies on the

small coastal gill-net fisheries and their resources. VI--Characteristics of the catch and fishing ground on the stopping-net (egiri-ami) fishery, VII--Ecological study of the fish population caught by the stopping-net (egiri-ami)," by T. Shiokawa; "Studies on new nitrofurane derivatives as food preservatives. On the preservative effect of AF-2 and AF-5, II--study on the chemical assay of nitrofurazone (F) AF-2," by A. Obatake and others; "Studies on the facts of marine products on cholesterol metabolism in rats. IV--Fractionation of effective substance from purple laver (1)," by T. Kaneda and K. Arai and "Studies on 'green' tuna. I--The significance of trimethylamine oxide," by C. Koizumi and Y. Hasemoto (in English).

_____, no. 3, March, 94 pp., illus. A few of the articles are: "Experimental use of fish pump VI--An attempt in using fish pump as pond cleaner by H. Soeda and others; "On the anatomy and function of stomach of Japanese pearl oyster, *Pinctada mazensii* (Dunker)," by Y. Kuwatani (in English); "Studies on the source of shellfish poison in Lake Hamana. I--Relation of the abundance of a species of dinoflagellate, *Prorocentrum* sp. to shellfish toxicity, II--Shellfish toxicity during the 'red-tide,'" by M. Nanzima (in English); and "Studies on new nitrofurane derivatives as food preservatives. III--Bioassay for AF-2 in foods, IV--On the behavior of AF-2 and nitrofurazone in fish sausage processing," by A. Obatake and T. Matsuda.

KING CRAB:

Movements of Tagged Crabs PARALITHODES CANADENSIS (Tilesius) in the Kodiak Island-Lower Cook Inlet Region of Alaska, 1954-63, by Guy C. Pelt and Richard E. Reynolds, Informational Leaflet 55, 10 pp., illus., processed, April 30, 1965, Department of Fish and Game, Subport Bldg., Juneau, Alaska 99801.

LABOR LEGISLATION:

Information on the Equal Pay Act of 1963, WHPC Publication 1104, 10 pp., printed, May 1965. Wage and Hour and Public Contracts Divisions, U. S. Department of Labor, Washington, D. C. 20210. The 1963 amendment to the Fair Labor Standards Act requires that men and women performing equal work must receive equal pay. This pamphlet outlines the types of jobs to which the equal pay provisions apply (generally those concerned with interstate and foreign commerce), what is meant by "equal pay" and "equal work," and what action can be taken by any person who has a question about the applicability of the equal pay standard.

LATIN AMERICA:

"La pesca y el problema alimenticio de la America Latina" (The fisheries and the food problem in Latin America), article, Industrias Pesqueras, vol. 3, no. 9, 907, Feb. 1, 1965, pp. 56-57, printed in Spanish, copy 50 ptas. (about US\$0.85). Industrias Pesqueras Apartado 35, Vigo, Spain.

LIBYA:

Foreign Trade Regulations of the Kingdom of Libya, OBR 65-29, 8 pp., printed, May 1965, 15 cents, Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

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MAKEREL:

Influence of External Factors on the Schooling of Jack Mackerel in the Gulf of Aden, by V. V. Nekrasov, IPS 25966, 3 pp., processed, 1964. (Translated from the Russian, Okeanologiya, vol. 4, no. 3, 1964, pp. 477-478.) Clearinghouse for Federal Scientific and Technical Information, U. S. Department of Commerce, Port Royal and Braddock Rds., Springfield, Va. 22151.

Vliyaniye vneshnikh faktorov na skopleniya stavridy v Adenskom zalive. (Po materialam 2-i ekspeditsii Azovo-Chernomorskogo nauchno-issledovatel'skogo instituta morskogo rybnogo khozyaistva i okeanografii v Indiskii okean)" (Effect of external factors on the accumulation of horse mackerel, Carangidae, in the Gulf of Aden--From the findings of the Second Expedition of the Azov-Black Sea Research Institute for Marine Fisheries and Oceanography in the Indian Ocean), by V. V. Nekrasov, article, Okeanologiya, vol. 4, no. 3, 1964, pp. 477-478, illus., printed in Russian. Akademiia Nauk SSSR, Moscow, U.S.S.R.

MOLLUSKS:

Effects of Synthetic Surfactants on the Larvae of Clams (M. MERCENARIA) and Oysters (C. VIRGINICA), by Herbert Hidu, 9 pp., printed. Reprinted from Journal Water Pollution Control Federation, Feb. 1965, pp. 262-270. Water Pollution Control Federation, 4435 Wisconsin Ave., Washington, D. C. 20016.

MUSSELS:

Tennessee River Mussel Investigation--A Progress Report, F65Fr1, 4 pp., printed, 1965. Tennessee Valley Authority, Fish and Wildlife Branch, Norris, Tenn. Discusses the investigation started in July 1963 by the TVA to determine the causes of mussel population depletion in the Tennessee River. Although the investigation is still not complete, the evidence to date points toward several causes, according to this leaflet. Overharvesting, changes in habitat (lack of current or impoundment), pollution, and siltation are all factors in the decline of the mussel population and consequent drop in production of the commercially valuable shell. Regulatory measures suggested to reverse the trend include licensing of operators, limiting the size of harvested shell, control over harvesting gear, limiting operations to daylight hours, and designating sanctuaries where mussels would be undisturbed.

NORTHWEST ATLANTIC:

Fishery on Georges Bank, by V. Tutichev, 43 pp., printed in Russian, 1964. Knizhnoe Izdanie, Kaliningrad, U.S.S.R.

Fishes of the Western North Atlantic, Part 4, 600 pp., illus., printed, 1965, \$27.50. Sears Foundation for Marine Research, Bingham Oceanographic Laboratory, Yale University, New Haven, Conn. This volume includes studies on the little known deep-sea fish, including the Sub-orders Argentiinoidea, Stomiinoidea, Esocoidea, Bathlaconoidea, and Order Gobiuroidea.

DIETITION:

Be Yourself a Break, 8 pp., illus., printed, 1965, single copy \$0.03, lots of 25 \$0.60, lots of 50 \$1.25, lots of 100 \$2. The American Dietetic Association, 20 N. Michigan Ave., Chicago, Ill. 60611. This nu-

trition leaflet for teen-agers includes fish as one of the protective animal protein foods to be eaten daily.

OCEANOGRAPHY:

The Atlantic Continental Shelf and Slope: A Program for Study, ITS Geological Survey Circular 481, 11 pp., illus., processed, 1963. Geological Survey, U. S. Department of the Interior, Washington, D. C. 20240.

"Exploration," by G. F. M. Smith, article, Federal-Provincial Conference on Fisheries Development, January 20-24, 1964, Canadian Fisheries Report No. 3, pp. 35-37, printed, 1964. Department of Fisheries, Ottawa, Canada.

"The oceanographic institute in Gothenburg, Sweden," by A. A. Kirpichnikov, article, Okeanologiya, vol. 4, no. 3, 1964, pp. 540-542, printed in Russian. Okeanologiya, Akademiia Nauk SSSR, Moscow, U.S.S.R.

Opportunities in Oceanography, by E. John Long, Smithsonian Publication No. 4537, 35 pp., illus., printed, revised April 1965, 50 cents. Editorial and Publications Division, Smithsonian Institution, Washington, D. C. 20560. Emphasizes the need for young people in the rapidly expanding field of oceanography. Discusses the qualities essential to a good oceanographer, his educational background, including opportunities for scholarships and research assistantships, and special opportunities for women. Covers the various fields of oceanography and the special challenges to each, while not neglecting to relate oceanography to other branches of science. Discusses the work of oceanographers on exploration, research, survey, and monitoring cruises as well as oceanographic occupations on land, ranging from laboratory technicians to statisticians and librarians. Includes a section on the active interest in oceanography taken by the Federal Government, and a section on the special interests of private industry. Finally, the future of oceanography is presented as one of ineluctable discoveries and breakthroughs which promise to reshape our way of life.

On some Oceanographic Observations in the Southeastern Caribbean Sea and the Adjacent Atlantic Ocean with Special Reference to the Influence of the Orinoco River, by Herman G. Gade, 56 pp., illus., printed in English with Spanish abstract. (Reprinted from Boletín del Instituto Oceanográfico, vol. 1, no. 2, Dec. 1961, pp. 287-342.) Instituto Oceanográfico, Universidad de Oriente, Apartado 94, Cumana, Venezuela.

Systematic Basis for Forecasting Oceanological Conditions and the Spawning of Commercial Fish, by G. K. Izhevskii, 165 pp., printed in Russian, 1964. Vsesoiuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khozyaistva i Okeanografii, Verkh. Krasnosel'skaia Ul. No. 17, Moscow, U.S.S.R.

"Voyages to discovery," article, Via Port of New York, vol. 17, no. 4, April 1965, pp. 6-8, illus., printed. The Port of New York Authority, 111 Eighth Ave., New York, N. Y. 10011. Discusses oceanographic vessels operated out of the Port of New York by the Lamont Geological Observatory, the Military Sea Transportation Service, an American steamship line, and a contractor of the National Science Foundation. One vessel is the Anton Bruun (formerly the Presidential yacht Williamsburg), which returned to port early this

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year after completing a 2-year 72,000-mile biological research study of the western half of the Indian Ocean. Ninety-one American and foreign scientists conducted investigations which yielded biological information previously unknown. The ship participated in the International Indian Ocean Expedition, a project in which more than 20 nations took part. Other vessels have sailed on cruises to obtain geological data (including one which discovered a massive deposit of gemstone diamonds off the South African Coast), and physical and chemical oceanographic information.

"World Ocean Market Report," by E. W. Seabrook Hull, article, *Geo Marine Technology*, vol. 1, no. 5, April 1965, pp. 7-25, printed, INTEL, Inc., 739 National Press Bldg., Washington, D. C. 20004.

OYSTERS:

Abstracts from *Chemical Abstracts*, vol. 60, American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006:

"Biochemical studies on *Ostrea gigas*. VIII--The iron and manganese content of meat," by A. Hayashi, Feb. 3, 1964, Abstract No. 3307f.

"A sample test for freshness of shellfish (oyster) using 2, 3, 5-triphenyltetrazolium chloride," by Taisuke Mochinaga and Akira Taguchi, Feb. 17, 1964, Abstract No. 4698g.

Chromatographic Evidence of Intraspecific Genetic Differences in the Eastern Oyster, (*CRASSOSTREA VIRGINICA*), by Robert E. Hillman, Contribution No. 252, 7 pp., printed. (Reprinted from *Systematic Zoology*, vol. 13, no. 1, pp. 12-18, March 18, 1964.) Natural Resources Institute, University of Maryland, Solomons, Md.

The Volatile Sulphur Compounds of Oysters, by A. P. Ronald, and W. A. B. Thomson, 7 pp., printed. (Reprinted from the *Journal of Fisheries Research Board of Canada*, vol. 21, no. 6, 1964, pp. 1481-1487.) Queen's Printer and Controller of Stationery, Ottawa, Canada.

PAKISTAN:

"Karachi's Fish Harbour achieves results," by R. D. Lee, article, *Foreign Trade*, vol. 123, no. 11, May 29, 1965, pp. 29-30, illus., printed, single copy C\$0.25. Queen's Printer, Government Printing Bureau, Ottawa, Canada. Construction of the new fish harbor and facilities at Karachi began in 1955, the market was opened in October 1959, and marketing operations began under the management of the Fishermen's Co-Operative Society. Landings are currently running about 200 tons a day, according to the author. The harbor is about 5,400 feet by 200 feet and the depth is between 10 and 14 feet. The facilities include a jetty over 1,700 feet long, equipped with cranes for loading and unloading fish. The co-operative administers the twice daily wholesale auctioning of both fresh and cured fish. In 1963, more than 4.3 million pounds of canned and frozen shrimp worth about US\$2.7 million were exported from Pakistan.

Market Factors in Pakistan, by Larry A. Niksch and Barry Wardlaw, OBR 65-24, 12 pp., printed, April

1965, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20540.)

PARASITES:

NOSEMA DOLLFUSI n. sp. (Microsporidia, Nosemidae), a Hyperparasite of BUCEPHALUS CUCULINUS in CRASSOSTREA VIRGINICA, by Victor Sprague, Contribution No. 243, 5 pp., illus., printed. (Reprinted from *The Journal of Protozoology*, vol. 11, no. 3, 1964, pp. 381-385.) Natural Resources Institute, University of Maryland, Solomons, Md.

PEARL CULTURE:

"How northern pearl farms are progressing," by V. Wells, article, *Australian Fisheries Newsletter*, no. 24, no. 6, June 1965, pp. 23-26, illus., printed, Fisheries Branch, Department of Primary Industry, Canberra A.C.T., Australia.

PIRANHA:

"El Brasil contra las pirañas" (Brazil versus the piranhas), by Blas Venegas, article, *Iberica*, vol. 43, no. 34, April 1965, pp. 126-128, illus., printed in Spanish, single copy 18 ptas. (about US\$0.30), Iberica, Palau, 3, Apartado 759, Barcelona-2, Spain.

PLANKTON:

Some Euphausiids from the Gulf of Paria, Gulf of Cariaco, and the Orinoco Delta, Eastern Venezuela, by J. E. Henri Legare, 18 pp., illus., printed in English with Spanish abstract. (Reprinted from *Boletín del Instituto Oceanográfico*, vol. 1, no. 1, July 1961, pp. 3-20.) Instituto Oceanográfico, Universidad de Oriente, Apartado 94, Cumaná, Venezuela.

POLAND:

"Centromor' of Poland--amongst the finest fishing vessels and equipment in the world," by J. Swiecicki and W. Piltz; "Review of achievements of Polish fishing"; "Motherships built by Poland"; "Development of factory trawlers in Poland"; "Fishing schools in Poland and research work of Marine Fishing Institute," articles, *Fishing News*, no. 2712, May 28, 1965, pp. i-vii, illus., printed, single copy 9 d. (about US\$0.15.) Fishing News, A. J. Heighway Publications, Ltd., Ludgate House, 110 Fleet St., London EC4, England.

"The expansion plan of Polish fishing fleet," article, *Polish Maritime News*, vol. 8, no. 80, April 1965, pp. 19-20, illus., printed. Maritime Branch, Polish Chamber of Foreign Trade, ul. Pulaskiego 6, Gdansk, Poland. The prospective expansion of the Polish fishing fleet is based on the demand for protein for nutritive and stock-breeding purposes, according to the author. A modern fishing fleet is a fundamental element in the development of sea fisheries and is a requisite to full utilization of the fish landed. The extension of the fishing fleet in 1966-70 will be coordinated with construction of shore bases. During that period, new vessels built will include 19 factory trawlers, 10 freezer-trawlers, 16 trawlers with freezing equipment, 4 tuna vessels, 25 large cutters, 45 small cutters, 3 motherships, and 2 refrigerated fish-transporters. This new fleet will have a catch potential of about 225,000 metric tons of fish a year. Principal species landed will be cod, flatfish, ocean perch, herring, sprat, sardines, tuna, and mackerel. It is expected that more than 70 percent of the fish

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ught will be frozen on board, which will guarantee high quality in the fish landed at ports.

FISHERIES:

Fish Breeding, by F. M. Sukhoverkhov, 423 pp., printed in Russian, 1963, Izdatel'stvo Sel'skokhoz-istvennoi Literatry, Zhurnalov i Plakatov, Moscow, U.S.S.R.

Fishing, by T. T. Solov'ev, 131 pp., printed in Russian, 1964, Pishchevaya Promyshlennost', Moscow, U.S.S.R.

REGAL:

Plan intercalar de fomento pesquero para 1965-1967, projected plan of fishery development for 1965-1967, article, Industrias Pesqueras, vol. 38, no. 903, Dec. 1, 1964, pp. 526-528; no. 904, Dec. 15, 1964, pp. 550-551, printed in Spanish, single copy 50 ptas. (about US\$0.85). Industrias Pesqueras, Apartado 35, Vigo, Spain.

ERVATION:

King Fish for Short Term Preservation, edited by N. Subba Rao, Regional Study No. 1, 21 pp., illus., processed, March 1965. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Far East, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand.

ROTEIN:

Electrophoretic analysis of fish muscle proteins, "H. M. Salem and A. M. Nagib, article, International Congress of Biochemistry, vol. 6, no. 2, 1964, p. 177, printed. International Union of Biochemistry, D. Desnuelle, Secretary General, Institut de Chimie Biologique, Faculté des Sciences, Place Victor Hugo, Marseilles, France.

Abstracts from Chemical Abstracts. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20036.

Myoglobins. 86--Isolation and properties of myoglobin from the dolphin (*Delphinus delphis*), "by M. Karasawa and others, vol. 60, May 25, 1964, Abstract 13478a.

Myoglobins from prawn shell waste, "by P. V. Kamatri and P. V. Prabhu, vol. 59, Oct. 14, 1963, Abstract No. 9243e.

SEINING:

Observation on Icelandic purse seining expedition, "M. Ya. Groisman, article, Rybnoe Khoziaistvo, vol. 40, no. 6, 1964, pp. 60-64, printed in Russian. Rybnoe Khoziaistvo, V. Krasnosel'skaia 17, Moscow 140, U.S.S.R.

QUALITY:

Comparative studies on the determination of the degree of freshness of fresh water fish, "by Josef Denner, article, Zeitschrift für Lebensmittel Untersuchung - Forschung, vol. 123, no. 5, 1963, pp. 354-358, printed in German. J. F. Bergmann, Leopoldstrasse 175, Munich 23, Germany.

Research on quality, processing and products, "by G. Bligh, article, Federal-Provincial Conference

on Fisheries Development, January 20-24, 1964, Canadian Fisheries Report No. 3, pp. 75-77, printed, 1964. Department of Fisheries, Ottawa, Canada.

SALMON:

International North Pacific Fisheries Commission, Bulletin No. 14, 92 pp., illus., printed, 1964. International North Pacific Fisheries Commission, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada. Includes articles on: "Marine growth of western Alaskan sockeye salmon (*Oncorhynchus nerka* Walbaum)," by Robert H. Lander and George K. Tanonaka; "Direction of movement of salmon in the North Pacific Ocean and Bering Sea as indicated by surface gillnet catches, 1959-1960," by Richard C. Johnsen; "Direction of movement of salmon in the North Pacific Ocean, Bering Sea and Gulf of Alaska as indicated by surface gillnet catches, 1961," by Herbert A. Larkins; "Effect of direction of set and distance between nets on the salmon catch of two gillnets," by Herbert A. Larkins and Robert R. French; "Use of a discriminant function to classify North American and Asian pink salmon, *Oncorhynchus gorbuscha* (Walbaum), collected in 1959," by Roger E. Pearson.

"Multiple hemoglobins of some members of the salmonidae family," by H. Tsuyuki and R. E. A. Gadd, article, Chemical Abstracts, vol. 59, Aug. 5, 1963, Abstract No. 3116b, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C. 20006.

"Petroleum odors in canned salmon," article, Food Technology, vol. 18, Nov, 1964, p. 119, printed, single copy \$1.50. The Garrard Press, 510 North Hickory, Champaign, Ill. 61823.

Articles from Journal of the Fisheries Research Board of Canada, single copy C\$2.00. Queen's Printer and Controller of Stationery, Ottawa, Canada:

"Redd superimposition and egg capacity of pink salmon spawning beds," by William J. McNeil, vol. 21, no. 6, 1964, pp. 1385-1396, illus.

"The species specificity and constancy of muscle myogen and hemoglobin electropherograms of *Oncorhynchus*," vol. 22, no. 1, 1964, pp. 215-217.

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Soviet Oceanography 1964: A Trip Report, by R. S. Dietz, 24 pp., printed, April 1965. Public Information Division, Coast and Geodetic Survey, U. S. Department of Commerce, Washington Science Center, Rockville, Md. 20852. From September 14-October 9, 1964, a 6-man delegation of marine scientists, including the author, visited the Soviet Union as part of a U. S.-U.S.S.R. scientific exchange mission. During their 4-week stay, the group visited research centers in Moscow, Leningrad, Murmansk, and in the Black Sea ports of Sevastopol, Yalta, and Gelendzhik. This report gives the general impressions gained by the author during the trip; appraises the Soviet effort in oceanography; and describes institutions and installations visited, their work, and their place in the Soviet oceanographic program. There are now about 1,200 oceanographers in the Soviet Union, according to the author. Four out of about 40 universities offer training in oceanography, 2 in Leningrad and one each in Moscow and Vladivostok. The Soviet oceanographic program in the Arctic Ocean is unique in

its scope. A great strength of Soviet oceanography is the amount of support provided scientists by technicians. Each senior scientist has 5-10 assistants, which makes possible thorough evaluation of data collected. Every year, the U.S.S.R. sends a fleet of nearly 300 ships and 15,000 fishermen to Georges Bank, off the New England coast. About 50 tons of fish are landed daily during the season. The Russians operate the world's only nonmilitary research submarine, the *Severyanka*, which is used for oceanographic work in the Arctic and North Atlantic Oceans.

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"Oceanological investigations on the R/V *Zhemchug* along the continental slope," by D. E. Gershanovich and B. N. Kotenev, pp. 729-731.

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WEATHER CHARTS:

Eureka to Point Conception, Calif., 1965, 2 pp., illus., processed, 1965, 10 cents. Weather Bureau, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.) Charts show stations displaying small craft, gale, whole gale, and hurricane warnings; explanations of warning displays; and schedules of AM and FM radio, TV, and radiophone stations that broadcast weather forecasts and warnings.

WHALES:

Articles from *Vtoroe Vsesoyuznoe Soveshchanie po Ispytaniyu Morskikh Mlekopitayushchikh, 1963 (The Second All-Union Conference for the Study of Marine Mammals, 1963)*, printed in Russian, 1963. *Akademiia Nauk SSR, Moscow B-140, U.S.S.R.*:

"Kosatka Yuzhnogo polushariya" (The killer whale of the Southern Hemisphere), by M. M. Sleptsov, pp. 40-41.

"Malyi polosatik Yuzhnogo polushariya" (The Minke whale in the southern hemisphere), by M. M. Sleptsov, pp. 41-42.

"Pitanie usatykh kitov v osnovnykh promyslovnykh rayonakh Mirovogo okeana" (The diet of baleen whales

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

the main fishing regions of the world ocean), by Klumov, pp. 22-24.

struktura stada zubchatykh kitoobraznykh (Odontoceti)" (The structure of the stock of the toothed whales (Odontoceti), by V. M. Bel'kovich and A. V. Kozlov, pp. 4-5.

NG: "On the big whales?" by John Hillaby, article, Scientist, vol. 26, no. 442, May 6, 1965, pp. 260, illus., printed, single copy 1s. 3d. (about 20). Cromwell House, Fulwood Pl., High Holborn, London WC1, England.

Preliminary survey of whaling operations in the Antarctic in season 1964/65," article, Norsk Hvalfang-

st-Tidende (The Norwegian Whaling Gazette), vol. 54, no. 4, April 1965, pp. 82-88, 91, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway.

WHITEFISH:

"O rezul'tatakh introduktsii sigov (Coregonus lavaretus maraenoides Poljakow, C. lavaretus ludoga Poljakow) v ozere Sevan" (Results of the introduction of the whitefish--Coregonus lavaretus maraenoides and Coregonus ludoga--in Lake Sevan), by M. G. Dadikyan, article, Izvestia Akademii Nauk Armenian SSR Biologia Nauk, vol. 17, no. 6, 1964, pp. 41-48, printed in Russian. Izvestia Akademii Nauk Armenian SSR Biologia Nauk, Yerevan, Armenian, S.S.R.



VESSELS

Correction--In the August 1965 issue, page 125, Modern Fishing Vessels, the address of the publisher was omitted. The address is Clearinghouse for Federal Scientific and Technical Information, U. S. Department of Commerce, Port Royal and Braddock Rds., Springfield, Va. 22151.



WORLD'S FIRST NUCLEAR-POWERED LIGHTHOUSE IN SECOND YEAR OF OPERATION

The world's first nuclear-powered lighthouse has begun its second year of operation in Chesapeake Bay, Md.

An isotopic power generator developed by the Atomic Energy Commission has been providing the power for the unmanned beacon in the U. S. Coast Guard's Baltimore Lighthouse since May 20, 1964.

The nuclear generator, designated SNAP-7B, was developed under the AEC's SNAP (Systems for Nuclear Auxiliary Power) program. The program's objective is the development of small nuclear auxiliary power sources for specialized land, sea, and space uses.

The 60-watt nuclear generator, designed to operate unattended for 10 years, supplants batteries that had to be replaced every year. Since no moving parts are involved, nothing in the generator is subject to mechanical failure. The Coast Guard has reported that the performance of the "nuclear" lighthouse has been completely reliable and generally excellent.

FISHERIES EXPERTS BEING RECRUITED FOR
TECHNICAL ASSISTANCE PROJECTS IN MANY COUNTRIES

There are many technical assistance projects in nearly all of the developing countries of the world for which the Food and Agriculture Organization (FAO) is responsible. Because the projects are expanding rapidly, there is a need for competent fisheries experts to fill many field vacancies. The following is a list of vacancies for which FAO is now recruiting. Write to (on a confidential basis if desired): Roy I. Jackson, Director, Fisheries Division, Food and Agriculture Organization of the United Nations, Via delle Terme de Caracalla, Rome, Italy.

The following list shows the country in which the vacancy exists, the types of fisheries experts being recruited (in parentheses the approximate duration of the assignment for fiscal year 1965/66, with a possibility for extension):

Aden: Marine Biologist (18), Turtle Biologist (6).

Argentina: Marine Biologist (18), Oceanographer (18), 2 Master Fishermen (18), Acoustics Expert (12), Fisheries Economist (18).

Caribbean: Fish Marketing Expert (18), Fish Training Expert (15), 2 Master Fishermen (18).

Colombia: Fishery Development Adviser (6).

Central America: Fisheries Economist (18), Fishing Expert (15), Fish Processing Expert (12).

Cuba: Master Fisherman (9), Fishery Development Adviser (18).

Cyprus: Fisheries Director (18).

East Pakistan: Fisheries Biologist (18), Oceanographer (12), 2 Master Fishermen (18), Training Officer (18), Fish Processing Expert (12), Marketing Expert (18), Statistician (18).

Ghana: Marine Biologist (18), Fishery Training Expert (12).

India: Fishing Gear Expert (15), Fish Processing Technologist (12), Fish Processing Technologist (6), Reservoir Fishing Expert (9), River Pollution Expert (6).

Iran: Inland Fisheries Expert (6).

Lake Kariba (Rhodesia): Fishery Technologist (18).

Nigeria: Fisheries Officer (18), Master Fisherman (15), River Fisheries Biologist (15), Marine Fisheries Biologist (17).

Philippines: Fish Marketing Expert (18), Fish Processing Expert (18). Senegal: Fishing Gear Expert (9). Syria: Marine Fisheries Expert (3). Togo: Fisheries Adviser (18). Venezuela: Marine Fisheries Expert (6). Zambia: Inland Fisheries Biologist (12).