

TRENDS AND DEVELOPMENTS

Additions to the Fleet of U. S. Fishing Vessels

A total of 69 vessels of 5 net tons and over, received their first documents as fishing craft during November 1947, compared with 88 in the same month the previous year. The State of Louisiana led with 12 vessels documented during the month, followed by California with 8 vessels, and Texas and Florida with 6 each, according to information released by the Bureau of Customs, Treasury Department.

During the first 11 months of 1947, a total of 1,225 vessels received their first documents as fishing craft, compared with 1,018 for the same period the previous year.

During the first 11 months of 1947, the State of Washington led in the documentation of fishing craft with a total of 208. Other leading States were California with 143, Louisiana with 129, and Florida with 104.

Vessels Obtaining Their First Documents as Fishing Craft

Section	November		Eleven mos. ending with November	
	1947	1946	1947	1946
	Number	Number	Number	Number
New England	1	8	70	73
Middle Atlantic	5	10	67	68
Chesapeake Bay	6	9	90	66
South Atlantic and Gulf	35	36	456	335
Pacific Coast	14	16	397	356
Great Lakes	2	5	71	69
Alaska	5	1	41	24
Hawaii	1	3	21	14
Unknown	-	-	12	13
Total	69	88	1,225	1,018

Note: Vessels documented by the Bureau of the Customs are craft of 5 net tons and over.



Utilization of Alaskan Salmon Waste

Technical and economic problems connected with the utilization of the salmon waste of Alaskan canneries are discussed in a research report released by the Office of Technical Services, Department of Commerce.

Current practice of Alaskan canneries is to discard the head, tail, fins, and viscera (about one-third of the weight of the salmon) by hauling these parts out to sea for dumping at considerable expense. Total annual waste is estimated at about 100,000,000 pounds.

The report describes the results (to January 1948) of a current study of the utilization of salmon waste to produce proteins, amino acids, enzymes, hormones,

and other products for the pharmaceutical and chemical industries. The research is being carried out under a contract negotiated in 1947 between the OTS Industrial Research and Development Division and the Alaska Fisheries Experimental Commission, Ketchikan, Alaska. The U. S. Fish and Wildlife Service has cooperated by making its Fishery Technological Laboratory, Seattle, Wash., available for the study. Widespread interest in the research has prompted the release of Part I of the report before completion of the study. According to Ely C. Hutchinson, IRDD Director, "This is the first coordinated study of the problem of the utilization of fish waste."

The report reveals that the utilization of salmon waste in Alaska is handicapped by several factors: the location of canneries at isolated spots, precipitous terrain making it difficult to expand installations, the extremely short canning season with a glut occurring at the 10-day peak of the season, high operating costs, limited transportation facilities, the perishability of the waste, and the employment of large crews of "outside" help.

However, G. Ivor Jones and Edward J. Carrigan, biochemists of the Seattle Technological Laboratory, and authors of part of the report, believe many possibilities exist for producing chemical and pharmaceutical products from the waste.

Discussing protein production, the biochemists state that a substantial amount of protein is to be found in the head, collar, and tail sections of the salmon. The roe is a good source of histone and the milt contains a high percentage of protamine. Other proteins with special properties are found in the digestive tract, liver, heart, and fins. The problem of sorting component parts of the waste for processing into special products could probably be solved, they suggest, by mechanical means. Even now the "iron chink" system for butchering the fish could be slightly altered to separate the head, collar, and tails from the rest of the waste. But manufacturing difficulties are more serious. If the processing were done on the spot, tremendous quantities would have to be handled in the 4-6 weeks' canning season. In some places, there is barely enough fresh water to handle present operations. Frequently, the terrain leaves but little space for plant expansion. If processed elsewhere, transportation would present difficulties.

Nevertheless, many of the problems can perhaps be solved by further study, the authors suggest. "An operation designed to prepare a fat-free, semi-purified protein and simultaneously recover the valuable fat fractions of salmon eggs seems to offer good economic possibilities," they say. Milt could be easily separated from the waste to produce protamine insulin should the market for this product expand.

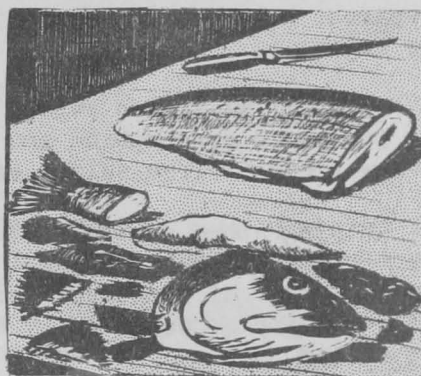
In the case of protein hydrolysates, used in special protein diets and in the preparation of microbiological culture media, the market already appears satu-



rated with different preparations, the report states. "It seems doubtful whether still another one prepared from salmon waste could be successfully marketed."

Difficulties to be encountered in extracting and isolating amino acids from salmon waste can only be conjectured at present, the authors say. But, they add, "It seems entirely possible that commercial methods of extraction and isolation now being used with other protein sources could be readily adapted to the processing of salmon waste proteins. . ." Salmon milt yields a simple protein "salmine," reported to contain about 88 percent arginine. If the market for this amino acid increased greatly, its production from salmon milt would be economically possible. However, a precise determination of the yields of specific amino acids is necessary before definite conclusions concerning this type of utilization can be reached, they conclude.

Exploitation of the fats and lipids in salmon waste for production of unsaturated fats, lecithin, and cholesterol--appears to have good possibilities though attendant problems require further study. Since salmon (and other fish) oils are unique in having long chain highly unsaturated fatty acids, additional research might turn up special markets for them. Lecithin, found in salmon eggs, is used in many industries. The practicability of recovering cholesterol from the egg oil depends on whether the cholesterol content is as high as reported, and whether it could be produced competitively with processes using wool fat or spinal cords.



The digestive tract of salmon is a good source of common hydrolytic or digestive enzymes. However, installation of a chemical processing plant in Alaska would be expensive. It would appear more economical to prepare crude concentrates in Alaska for refining in the United States.

Further research may show the advisability of utilizing the waste for production of insulin, sex hormones, and numerous other miscellaneous compounds, the report states. "It becomes increasingly obvious that full and efficient utilization of salmon waste rests upon the instigation of a comprehensive and long range research program in order to fully ascertain the possibilities of lesser known constituents," these authors believe.

In general, it will be necessary to "find a product or several products which can be prepared from the waste with a high enough selling price. . .and to develop some method for handling the huge glut of waste, presumably by finding some suitable preservation technique whereby processing can be carried out over a longer period of time. . .," the report states.

Messrs. Jones and Carrigan base their analysis of the technology and economics of salmon waste utilization on an intensive survey of the literature on the subject, (over 600 items), and on interviews with researchers and business executives in leading pharmaceutical companies, medical research centers, and universities.

The report also contains two preliminary technical papers describing special phases of the research.

Charles Butler and David Miyauchi, chemists of the Seattle Technological Laboratory, report on their study of the preparation of vitamin oils from salmon

waste by the alkali digestion process. "It may be stated that the (alkali digestion) process can be utilized to recover the oils from the waste, but the experiments conducted were not sufficiently numerous . . . to warrant conclusive statements regarding the potential supply of vitamin A oils that could be obtained from Alaska cannery waste." The technical details of the research on this subject accomplished thus far are fully described.

The report contains an account of a biological assay of the nutritional value of salmon waste for feeding hatchery fish, prepared by Roger E. Burrows, aquatic biologist, U. S. Fish and Wildlife Service and Neva L. Karrick, chemist, Alaska Fisheries Experimental Commission. The demand for hatchery bred fish and food to feed them has increased tremendously in recent years, they state. The Alaskan salmon waste is a huge potential source of fish food providing it can be preserved for transport and storage. Feeding tests using the frozen viscera of Columbia River salmon have indicated that this food develops better growth and results in lower fish mortality than some other foods currently used. This phase of the research, however, is not complete and will be further discussed in Part II of the report.

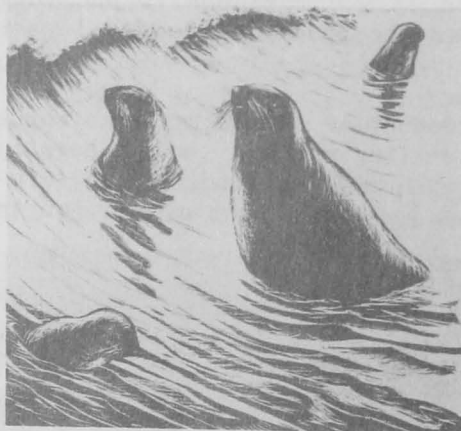
Part II will also report findings of research to prepare an edible salmon oil for human consumption and will contain further details on the development of new products from salmon waste.

Mimeographed copies of the report (PB-85171; Utilization of Alaskan Salmon Cannery Waste; 89 pages) sell for \$2. Orders for the report should be addressed to the Office of Technical Services, Department of Commerce, Washington 25, D. C., and should be accompanied by check or money order, payable to the Treasurer of the United States.



U. S.-Canadian Provisional Seal Agreement Signed

The United States and Canada, by an exchange of notes dated December 26, 1947, have provided for the continuance of the present provisional fur seal agreement between the two countries until a permanent convention can be arranged for the protection of the fur seal herd of the North Pacific, according to a Department of State release of January 6.



The original sealing convention for the protection and preservation of the fur seal herd of the North Pacific Ocean was signed in 1911 by the United States, Great Britain, Japan, and Russia. In October 1941, this convention was abrogated by Japan. During the war, the Governments of Canada and the United States felt it advisable that the two countries should continue the protection of the herd. They therefore

entered into a provisional agreement for the duration of the emergency and 12 months thereafter in order to carry on the fur seal conservation program during the war.

The fur seal conservation program was designed to rehabilitate the stock of fur seals in the North Pacific, which had become seriously depleted by the practice of ruthless pelagic sealing. The original convention was intended to rebuild the herd, primarily by the prohibition of pelagic sealing. In 1912, the first year that the convention was in effect, the size of the Pribilof Islands herd was about 216,000; by sound conservation and management practices the herd has now increased to over 3,600,000, according to the annual census taken in August 1947. The sealing operations in these Islands are administered by the Fish and Wildlife Service of the Department of the Interior. The herd is estimated to be worth in excess of \$100,000,000, and the fall 1947 semi-annual auction of fur seal skins yielded gross proceeds to the Federal Government of over \$1,470,000.

Since the U. S. Government assumed direct control over the fur seal herd, a total of 1,360,000 skins have been taken. The United States has already received net proceeds in excess of \$13,000,000 from the sale of its share of these skins.



Personnel Changes--Division of Commercial Fisheries

The Division of Commercial Fisheries announced that effective about April 15 there will be several personnel changes in its Washington staff.

Fred F. Johnson, who was first appointed in 1920 and has been employed in the Division continuously since then except for several years in private industry and four years in active Naval service, will transfer to the Headquarters of the Fish and Wildlife Service's Region 1 at Portland, Oregon, as one of the two Assistant Regional Directors. Mr. Johnson's work there will be particularly concerned with administration of fish cultural activities, river basin development projects, and other fisheries work in this important fish-producing region which embraces the States of California, Oregon, Washington, Nevada, Idaho, and Montana. Mr. Johnson has been Assistant Chief of the Division of Commercial Fisheries since 1935; and has also held the positions of Chief, Statistical Section and Chief, Statistical and Market News Section.



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R. T. Whiteleather, who is now Chief of the Educational Section, will be made Assistant Chief of the Division, the position vacated by Mr. Johnson. Mr.



Whiteleather is a graduate of the Fisheries School at the University of Washington, having obtained a degree in fisheries in 1935. After his graduation he became engaged in stream survey work in connection with the Federal Government's Salmon Rehabilitation Program on the Columbia River, and later worked in Alaska on the Herring Investigations in Kodiak and Prince William Sound areas. After leaving the Pacific Coast in 1938, Mr. Whiteleather spent considerable time in fisheries statistical work in the States on the Atlantic Coast. More recently, he was engaged for four years in exploratory fishing operations in the British West Indies, Puerto Rico, and the Virgin Islands. During 1945 and a part of 1946, he was in charge of the Division's Fishery Market News Office in New York City.

In May 1946, he was brought to Washington to organize the new Educational Section in the Division and has supervised its activities since that time.

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Donald Y. Aska, now serving as Assistant Chief of the Statistical Section, will be appointed Chief of the Educational Section succeeding Mr. Whiteleather.

Mr. Aska is a graduate of the University of Washington, where he attended the Fisheries School, and has been employed by the Service since 1938, at which time he was assigned to fishery statistical field work in the Atlantic Coast States. In 1942, he was detailed to the Statistical Section in the Washington office, later accompanying the administrative offices of the Service to Chicago. During the period 1943 to 1945, Mr. Aska served with the Army Corps of Engineers both in this country and in the European Theatre. Since his return from military furlough in 1945, he has been serving as Assistant Chief of the Statistical Section.



Day Appointed to Salmon Commission

The Secretary of State announced on January 5 that the President has designated Mr. Albert M. Day, Director of the Fish and Wildlife Service of the Department of the Interior, as a United States member of the International Pacific Salmon Fisheries Commission, United States and Canada, to fill the position left vacant by the death of Mr. Fred J. Foster. The other United States members of the Commission are Messrs. Edward W. Allen and Milo Moore, both of Seattle, Wash. Mr. Day will receive no compensation for his work as a member of the Commission, and he will maintain his position as Director of the Fish and Wildlife Service.

The International Pacific Salmon Fisheries Commission functions under the Convention between the United States and Canada signed at Washington on May 26, 1930, for the protection, preservation, and extension of the sockeye salmon fishery of the Fraser River system.



Dr. Kask to Head FAO Fisheries Branch

The Food and Agriculture Organization announced on January 15, 1948, that Dr. John L. Kask of the United States of America has been appointed to head the Biological Branch of the FAO Fisheries Division. Dr. Kask, at present Curator of Aquatic Biology at the California Academy of Sciences, San Francisco (USA), is expected to take up his duties with FAO on January 16. Dr. Kask already has considerable experience in the international aspects of fisheries problems. From 1928 to 1938 he was Associate Scientist of the International Fisheries Commission, (USA and Canada). For the next six years, Dr. Kask served as Assistant Director of the International Pacific Salmon Fisheries Commission. He also spent two years in Japan as Assistant Chief of the Fisheries Division on the staff of the Supreme Commander for Allied Powers.

Dr. Kask's immediate work at FAO will be to organize Regional Fisheries Councils. Fishery conservation and management problems on the high seas are international in character, but because these problems differ widely in the many areas involved, Fisheries Councils are being established by FAO on a regional basis to assist governments to develop fully their natural fisheries resources. Specific problems to be studied include distribution of species, seasonal variations in abundance, the effect of fishing operations on numbers, and effective methods of propagation, stocking, and control of disease and pollution.

The FAO Geneva Conference last summer recommended the setting up of these Regional Councils for the Northwest Atlantic, Southwest Pacific and Indian Ocean, Mediterranean Sea and contiguous waters, Northeast Pacific, Southeast Pacific, Western South Atlantic, Eastern South Atlantic, and Indian Ocean (African area). Thirteen countries bordering in European waters, comprising the Northeastern Atlantic, North Sea, and the Baltic Sea, fall within the scope of the Permanent International Council for the Exploration of the Sea, established in 1899 with headquarters at Copenhagen, Denmark.

FAO will concentrate on establishing Councils in regions where no such service is already in existence. Preliminary work on the establishment of Regional Councils in the Indo-Pacific area will begin at the FAO Fisheries Conference to be held in the Philippine Islands late in February 1948.



Wholesale and Retail Prices

Reversing the upward movement of the previous month, average primary wholesale food prices showed a decline of 2.1 percent from September 20 to October 18 and a drop of 0.3 percent from October 18 to November 15, according to the Bureau of Labor Statistics, U. S. Department of Labor. Wholesale canned salmon and cured cod did not follow the general trend and showed gains during October and November.

Wholesale and Retail Prices

Item	Unit	Percentage change from--			Percentage change from--		
		10/18/47	9/20/47	10/19/46	11/15/47	10/18/47	11/15/46
Wholesale: (1926 = 100)							
All commodities	Index No.	157.9	-0.1	+16.9	158.5	+0.4	+16.7
Foods	do	178.5	-2.1	+1.7	178.0	-0.3	+8.5
Fish:							
Canned salmon, Seattle:		10/47	9/47	10/46	11/47	10/47	11/46
Pink, No. 1, Tall	\$ per doz. cans	4.710	+4.0	+82.0	4.894	+3.9	+53.5
Red, No. 1, Tall	do	6.125	+8.4	+29.5	6.279	+2.5	+17.1
Cod, cured, large shore,							
Gloucester, Mass.	\$ per 100 lbs.	14.250	+5.6	+2.5	14.500	+1.8	0
Herring, pickled, N. Y.	¢ per lb.	12.0	0	0	12.0	0	0
Salmon, Alaska, smoked, N. Y.	do	35.0	0	0	35.0	0	0
Retail: (1935-39 = 100)							
All foods	Index No.	201.6	-0.9	+12.0	202.7	+0.5	+8.0
Fish:							
Fresh and canned	do	286.5	+3.9	+14.7	302.4	+5.5	+14.1
Canned salmon:							
Pink	\$ per lb. can	48.0	+6.9	+99.2	50.7	+5.6	+63.0

The commodity prices index in primary markets rose to 158.5 percent of the 1926 average as of November 15, which is a new postwar high, 16.7 percent above a year earlier, and 40.6 percent higher than the end of June 1946.

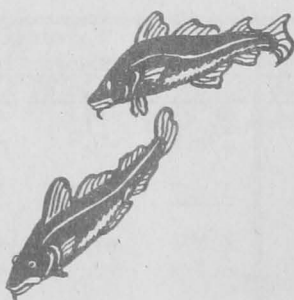
Retail food prices in large cities followed the wholesale trend in October and declined 0.9 percent compared with the previous month, but in November the reverse was true and an increase of 0.5 percent took place when compared with October. Compared with October and November a year earlier, retail food prices increased 12 percent and 8 percent, respectively.

Retail prices of fresh and canned fish in October gained 3.9 percent over September, and an additional increase of 5.5 percent between October and November. In comparison with October and November a year previous, there were gains of 14.7 percent and 14.1 percent, respectively. Canned pink salmon followed the same general trend as fresh and canned fish.



COD--THE BEEF OF THE SEA

Reams have been written about various fish, both from a sporting and nutritional standpoint, but seldom do you see anything regarding that illustrious species of fish, the cod, along with the immediate members of its family, the haddock, pollock, hake, and cusk, all popularly designated as "groundfish." The cod has been termed by some, "The Beef of the Sea." From a nutritional standpoint it might well deserve this title since it contains an amount of protein pound for pound equivalent to beef, besides essential minerals, vitamins, and fat.



As cattle or beef are perhaps the greatest source of meat from our land producing areas, so was the cod our greatest source of food from the sea for many years. Granted that it does not hold this position now with salmon, tuna, rosefish, and several other species being caught in greater volume today, but historical books and pamphlets indicate that the fishing industry of the United States developed around the cod.

--Fishery Leaflet 269