

RESEARCH

IN SERVICE LABORATORIES

September 1951

ANALYSIS AND COMPOSITION: Oil Content of Pacific Coast Rockfish and Atlantic Ocean Perch: Samples of Pacific Coast rockfish (Sebastodes pinniger) and of Atlantic ocean perch (Sebastes marinus) fillets packed in New England were analyzed to determine the range of oil content. The results were as follows: (each value represents the oil-content percentage of a single fillet): Pacific Coast rockfish (Sebastodes pinniger)—4.13; 1.17; 3.0; 1.74; 2.00; 2.45; 3.10; 3.78; 3.25; 1.91; 2.37; 2.12; 2.85; 2.46; 1.98; and 1.55 percent. Atlantic ocean perch (Sebastes marinus)—7.29; 4.68; 4.80; 6.53; 5.19; 6.65; 4.08; 5.75; 4.28; 5.13; 6.65; 4.21; 6.38; 4.38; 7.30; and 6.16 percent. (Seattle).

Composition and Cold Storage Life of Fresh-water Fish: Very little information is available as to the chemical composition of inland fresh-water fish and no published information whatever is available concerning the cold-storage life of fresh-water fish. The project's purpose is the determination of the chemical composition and cold-storage life of such fish.

Preliminary arrangements have been made for the shipment of frozen samples of fresh-water fish by Railway Express from the Lake Erie region to the Seattle laboratory. (Seattle).

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BYPRODUCTS: Vitamin Content and Nutritive Value of Fishery Byproducts: This project aims to determine the range of concentration of certain vitamins, especially vitamin B₁₂ and riboflavin in fish meal from different sources and to determine the possible presence of unknown vitamins and other growth substances which may be present in fish meal.

Concentration of the extract of fish livers started last month was continued and has almost been completed. The next step will be to attempt to obtain a microbiological procedure for the fish factor. The method proposed by Norris at Cornell University is to be used. Preliminary work has been carried out toward preparation of a synthetic basal medium used by these tests and the first assays will be started in another week's time.

Work was continued on assays for riboflavin, niacin, and B₁₂ on the extensive series of pilchard meals and intermediate products of different stages of manufacture. (Seattle).

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REFRIGERATION: Study of Cause of Texture Change of Canned Salmon Prepared From Frozen Fish: Work done prior to this study has shown that salmon frozen and held in cold storage at 0° F. for as short a period as one week before processing will produce an inferior canned product as compared to the canned fresh fish. Under normal cold-storage conditions, fish frozen and stored only one week do not undergo

any appreciable oxidative changes. It is well known that the myosin fraction present in fish protein immediately starts to undergo changes which may be called denaturation. For this reason it has been postulated that the protein denaturation and the changes in the texture, volume of free oil, and liquid and curd present in canned salmon prepared from frozen fish are directly related.

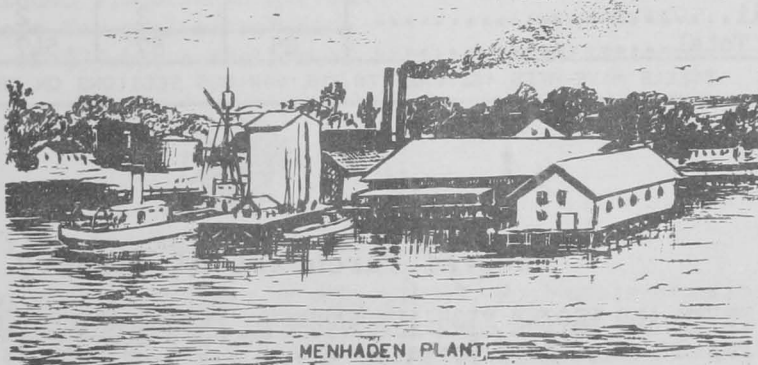
In order that the effect of storage time on the extent of denaturation and therefor on the quality of canned frozen salmon could be checked during the first week in frozen storage, a series of samples were frozen and stored for 0.5, 1.5, 3.5, 5.5, and 10.5 days. The fish used were comparatively fresh trap-caught sock-eye salmon. They were dressed, packed in half-pound flat cans, and placed in an ice and water bath for approximately 5 hours to bring all cans of fish to an equal temperature. The cans were removed from the bath and placed in a storage room held at approximately 0° F. Zero-storage time, for reference purposes, was taken as the time the cans were placed in the cold-storage room, even though the fish had not yet frozen. Ninety-six cans of the fish were processed immediately after packing in the can, to serve as a control for comparison with the experimental packs. At the end of each experimental storage period (0.5, 1.5, 3.5, 5.5, and 10.5 days) 40 cans of salmon were removed from storage and held in cold water for approximately 4 hours, allowing the fish to thaw. The cans of fish were then restored for 90 minutes at a temperature of 244° F. These samples will be stored for several months before any examination can be made on them. This time should allow for the stabilizing of the free oil and liquid. (Ketchikan).



U.S. CANNED FISHERY PRODUCTS PRODUCTION

DO YOU KNOW...

That the 1950 production of fishery byproducts in the United States and Alaska was valued at \$76,218,997--3 percent less than in the previous year. The principal byproducts were marine-animal oils,



MENHADEN PLANT

21,763,849 gallons, valued at \$17,472,709; marine-animal scrap and meal, 239,713 tons, valued at \$29,225,928; marine pearl-shell, oyster-shell, and fresh-water shell products, valued at \$16,312,004; and fish solubles, valued at \$4,461,362.

That byproducts were produced in 322 plants in 22 States and Alaska in 1950.

Canned Fish & Byproducts--1950, C.F.S. No. 671