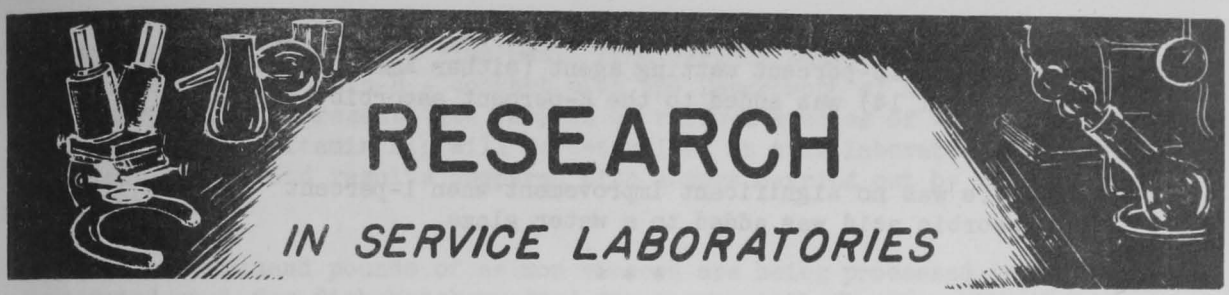

MAY 1950

REFRIGERATION: Frozen oysters treated with ascorbic acid and glazes received acceptable scores after two months of storage. Differences between test samples were somewhat greater than after the first month of storage but were not considered significant.

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Results of tests on the storage of frozen pink salmon fillets during the 8 months of storage were as follows:

1. Storage life of pink salmon fillets:

Sample	Treatment of Fillets (Packaged in Moisture-vapor Proof Materials)	Storage Temperature	Storage Life (in months)
A	Untreated, skin off	0° F.	less than 3
B	Untreated, skin on	0° F.	3
C	Block frozen, water glazed	0° F.	7 to 8
D	Dipped 30 seconds in 2 percent ascorbic acid	0° F.	7 to 8
E	Coated with 0.3 percent ascorbic acid in a dilute solution of Irish moss Extractive or Low-methoxyl pectin	0° F.	6 to 7
F	Dipped for 30 seconds in 0.5 percent ascorbyl palmitate and 0.1 percent NDGA	0° F.	less than 6
G	Block frozen, water glazed	-20° F.	more than 8
H	Dipped in 2 percent ascorbic acid, block frozen, and glazed in 1 percent ascorbic acid	0° F.	more than 8
I	Dipped 2½ minutes in approximately 0.36 percent Griffiths G-4 antioxidant	0° F.	6

2. Two types of moisture-vapor proof packaging materials were used--0.0015-inch gauge polyethylene sheet and bags and 300 MSAT grade cellophane sheet. There were no significant differences in keeping quality of the fillets due to either of these packaging materials.

3. At the 0.3-percent ascorbic-acid level no significant difference was found when the two carrier agents (Irish moss extractive and low-methoxyl pectin) were compared.

4. The addition of 0.2 percent citric acid as a synergist to 2-percent ascorbic acid increased slightly the storage life of the fillets to a full 8 months and perhaps longer.

5. There was no significant improvement in keeping quality when an 0.5-percent wetting agent (either Emcol Pl 50-3 or Emcol 14) was added to the 2-percent ascorbic-acid dip.

6. There was no significant improvement when 1-percent ascorbic acid was added to a water glaze.

* * *

PRESERVATION: Work on the development of preservatives for salmon eggs was continued. The following tabulation shows the chemicals which give satisfactory results, together with the cost of preserving one pound of eggs with a chemical or combination of chemicals:

No.	Preservative	Minimum Percent of Preservative	Cost of Chemical to Preserve One Pound of Eggs (Cents Per Pound)
1	Sodium Sulfite	0.5	0.40
2	Sodium Bisulfite	0.5	0.33
3	Sodium Sulfite Sodium Chloride	0.2 2.0	0.17
4	Sodium Bisulfite Sodium Chloride	0.16 2.0	0.11
5	Sodium Sulfite Sodium Benzoate Sodium Chloride	0.1 1.0 2.0	1.50
6	Sodium Bisulfite Sodium Benzoate Sodium Chloride	0.1 1.0 2.0	1.11
7	Sodium Benzoate Sodium Chloride	2.0 2.0	2.06
8	n-Butyl p-hydroxybenzoate Sodium Chloride	0.5 2.0	4.55

It was decided that chemical No. 8 was too expensive to consider, especially in view of the fact that other less costly chemicals gave satisfactory results. It was further decided that since sodium bisulfite gave results equally satisfactory to sodium sulfite and that the bisulfite was considerably cheaper, that future tests would be confined to use of the bisulfite. Accordingly, when large-scale experiments are begun in the next few months, it is planned to confine further tests to formulas No. 2, 4, 6, and 7.

* * *

NUTRITION AND COMPOSITION: Biotin assays were carried out by micro-biological methods on a number of the hatchery diets and hatchery raw materials. Further research was carried out on determination of folic acid in the hatchery products, but no satisfactory procedure has yet been obtained.

The data are being summarized on the project for the determination of food value of fishery products as prepared for serving. To date approximately 419 samples have been analyzed.

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BYPRODUCTS: Samples of fish meals from various sources were assembled for cooperative tests on vitamin-B_{12} content with the Department of Agriculture at Beltsville, Maryland. Representative samples of various species of West Coast meal are being collected. Vitamin B_{12} will be determined at this laboratory by the microbiological method and results compared with assays carried out by the Department of Agriculture.

Several thousand pounds of salmon viscera are being processed into low-temperature dried meal for fish hatchery food for tests at the Leavenworth, Washington, hatchery. Other materials, such as fish livers, whole gray cod, hake, and animal-protein-factor concentrates are being collected for the feeding tests.

* * *

SANITATION AND QUALITY CONTROL: Studies on the cultural characteristics of the "pink" yeast isolated from oysters indicated that the organism is able to withstand wide variations of temperature. The ability of the organism to ferment sugars, such as dextrose and sucrose, is very slow.

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LITERATURE ABSTRACTS: A system for preparing an index to Commercial Fisheries Abstracts is being considered. It has been observed that quite a few of the users of this periodical do not cut out the cards, but retain the bound issues of Commercial Fisheries Abstracts in their files. As time goes on, it becomes necessary to look through quite a large number of individual issues in order to find back material. It is planned that an index covering the first three years of Commercial Fisheries Abstracts will be prepared and issued as a Fishery Leaflet. A system of headings under which the abstracts will be listed has been worked out and preliminary classification of the first two volumes has now been completed.

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CANNED FISHERY PRODUCTS: A method for the prevention of struvite formation has been developed, according to the Service's Boston Technological Laboratory. A patent application covering this method recently was filed by a New England research group. Struvites are crystals of magnesium ammonium phosphate which often form in canned fishery products and which are easily mistaken by the consumer for pieces of glass. These crystals have been a constant source of trouble in the canned fish industry and, occasionally, have been the basis of claims and law suits. Trouble has been encountered more with shellfish, such as canned shrimp, lobster, and crab meat, than with other varieties of canned fishery products, but struvites have been found in a good many of these products. If successful, the method of prevention recently developed would eliminate a source of annoyance to packer and consumer.