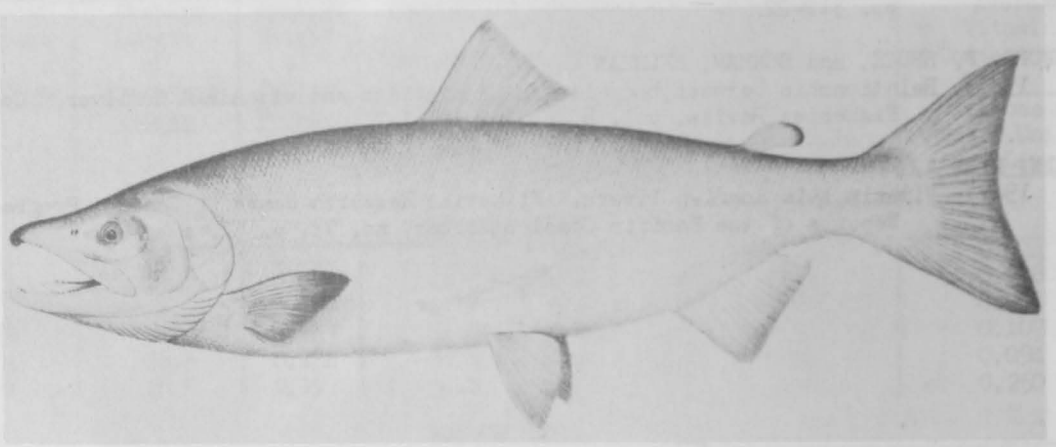
RESEARCH
IN SERVICE LABORATORIES

JANUARY 1950

REFRIGERATION: An initial examination was made of the five packs of canned sockeye salmon prepared for the study of methods of handling frozen salmon for later canning. These packs included the controls prepared from the fresh fish and packs prepared from glazed and unglazed frozen fish stored for 6 and 16 weeks.



RED OR SOCKEYE SALMON
(ONCORHYNCHUS NERKA)

In each examination, the control samples were compared to samples of an experimental pack. Although the examinations are to be repeated several times in order to obtain representative judgments, the following observations indicate the trend in the samples examined:

1. Control packs received the highest average score in all cases. There was little difference between the control samples and those prepared from salmon frozen, glazed, and stored for 6 weeks.

2. Sockeye salmon which was canned after being frozen, glazed, and stored for 16 weeks was approximately equivalent in quality to salmon which was canned after being frozen and stored for 6 weeks with no glaze. Both were significantly lower in quality than control samples.

3. Sockeye salmon which was canned after being frozen and stored for 16 weeks with no glaze received the lowest score and was judged of poor quality because of excessive curd and discoloration on the surface flesh, an undesirable dry texture, and presence of off-flavor in the skin and fat.

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Approximately 100 packages of frozen oysters have been prepared for studies on the darkening which reportedly occurs in frozen oysters during storage. Included in methods of preparation are ascorbic acid dips, added ascorbic acid and citric acid, and glazes with water and ascorbic acid solution.

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After 10 months of storage at 0° F., the pan-dressed striped bass that were first wrapped in vegetable parchment, then dipped in water, followed by wrapping in moisture-vapor-proof material and freezing, are still well coated with ice and show no discoloration and desiccation. Fish prepared by the usual methods show considerable localized desiccation, extreme drying of the skin, and discoloration.

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Tests on frozen pink salmon after 5 months of storage indicate:

1. There were no significant improvements in quality of the product by using polyethylene bags or wraps compared to pliofilm bags and cellophane wraps.

2. Fillets dipped in 0.5% ascorbyl palmitate showed a marked improvement when compared to undipped fillets.

3. Fillets glazed with 1% ascorbic acid show no improvement in quality compared to fillets glazed with plain water.

4. Fillets dipped in 2% ascorbic acid show a marked improvement when compared to undipped fillets.

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PRESERVATION: Tests on use of benzoates and substituted benzoates for preservation of salmon eggs at low temperatures are continuing and it appears that these preservatives which were relatively ineffective at the high (99° F.) accelerated storage temperatures may be practical at temperatures of 60° F. or less.

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SANITATION AND QUALITY CONTROL: The pH determinations have been conducted on the oyster liquor, ground individual oysters, three oysters ground together, and six oysters, ground together. The average pH values of the samples examined so far, taken immediately after blowing, are as indicated to the right.

Sample	Standards	Selects
Single oyster	6.55	6.62
Three oysters	6.58	6.62
Six oysters	6.54	6.64
Liquor	6.76	6.82

The range in pH of the ground fresh meats is staying within rather narrow limits, being between 6.50 and 6.62 for the standards, and 6.56 and 6.68 for the selects. At the same time, the range in pH of the liquor has been between 6.70 and 6.82 for the standards, and 6.80 and 6.82 for the selects.

Blowing seemingly has very little effect on pH of the oysters, since the values for oysters taken prior to blowing fall within the ranges given above for blown oysters. The water used for blowing at one point has a pH of 7.82 but this value drops to about 7.10 after a few minutes of blowing.

A gradual drop in pH occurs during storage of the shucked oysters at ice temperature. As before, the values stay within a rather narrow range for any particular lot. Spoilage has occurred so far at a pH between about 5.9 and 5.7.

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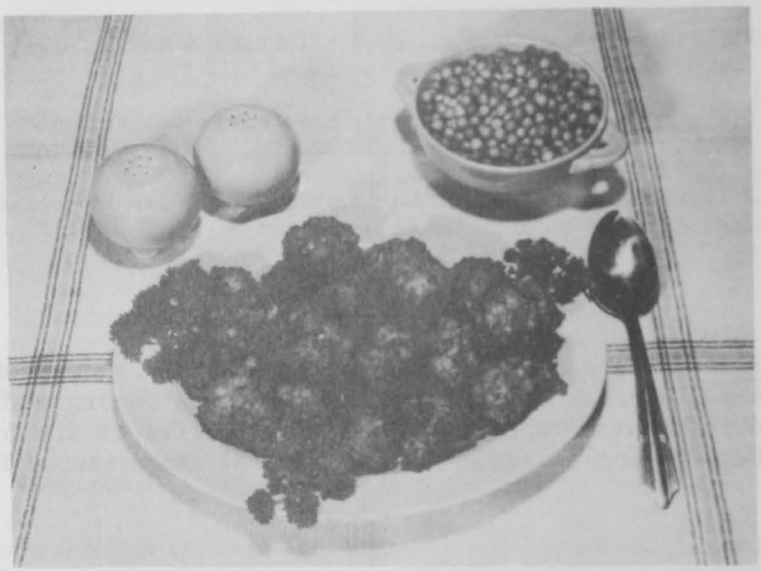
NUTRITION: Samples of hatchery feed now in use by Washington State Fisheries Department were procured and gross chemical composition is being run. This work is being undertaken in connection with that portion of the hatchery program dealing with the State and Federal hatcheries trying out each others standard diets.

CLAM FRITTERS



1 cup clams, ground
1 cup sifted flour
1½ teaspoons baking powder
½ teaspoon salt
1 egg, beaten
½ cup milk
1 teaspoon melted fat

Sift dry ingredients together. Combine the beaten egg, milk, and fat. Add gradually to the dry ingredients, then add the clams. Heat fat to 375° F. Drop the mixture by spoonfuls into the hot fat, and fry until golden brown (2 to 3 minutes). Remove fritters and drain on absorbent paper. Serves 6.

A Fish and Wildlife Service tested recipe. This is one in the series of recipes using fishery products tested and developed in the Service's test kitchens.