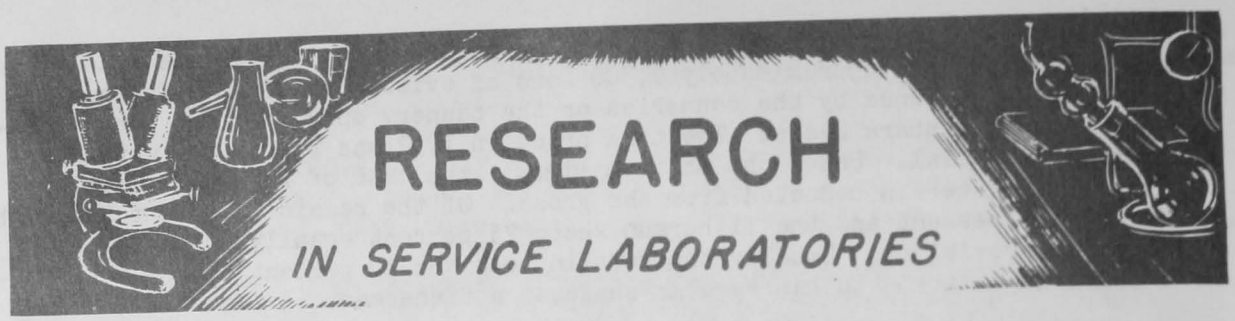

Progress on Projects, December 1952

REFRIGERATION: Freezing and Storing Alaska Shrimp and Dungeness Crab: Seven experimental packs of frozen Dungeness crab meat were examined. The sample packs were prepared to study the effect of a low storage temperature (-20° F.) and improved packaging methods on the keeping quality of the meat. Organoleptic and physical tests on these samples after nine weeks of storage revealed that all test packs were in good marketable condition. Appearance of all samples was good. Flavor and texture of all were good, but differences among the packs were evident. There was an indication that the superior packs were (1) those vacuum packed in cans and stored at -20° F.; and (2) those covered with dilute brine (2-percent salt solution), vacuum sealed in cans, and stored at 0° F. (Ketchikan)

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Cold-Storage Life of King and Silver Salmon: Only slight changes occurred in the king and silver salmon steaks and in the drawn (heads-on) fish stored at 0° F. for three months. Results of organoleptic tests on the frozen salmon are:

Quality Ratings (Organoleptic Tests) of Frozen King and Silver Salmon

Salmon Species	Quality Factor	Quality Rating of Baked Salmon Steaks		
		Before Storage (Initial Examination)	After 3 Months of Storage	
		Immediately after drawn (heads-on) fish were frozen, steaks were cut, baked, and examined.	Drawn (heads-on) fish were frozen; immediately after freezing, steaks were cut, glazed, packaged, and stored at 0° F. After 3 months of storage steaks were baked and examined.	Drawn (heads-on) fish were frozen, ice-glazed, packed in wax-lined wooden boxes, and stored at 0° F. Steaks cut from these frozen fish after 3 months of storage were baked and examined.
King	Flavor	Good to Excellent.	Good. Incipient rancidity at tips of steaks.	Good.
	Texture	Somewhat Soft.	Somewhat Soft.	Somewhat Soft.
	Appearance	Good to Excellent.	Good.	Good.
Silver (Lot A)	Flavor	Good to Excellent.	Good. Slight rancidity at tips of steaks.	Good. Slight rancidity at tips of steaks.
	Texture	Good to Excellent.	Good.	Good.
	Appearance	Good to Excellent.	Considerable surface curd.	Good. Very little surface curd.
Silver (Lot B)	Flavor	Good to Excellent.	Good.	Good. Slight rancidity at tips of steaks.
	Texture	Good to Excellent.	Slight rancidity at tips of steaks.	Good.
	Appearance	Good to Excellent.	Considerable surface curd.	Moderate amount of surface curd.

Freezing, Glazing, and Thawing Salmon for Canning: Preliminary data on the characteristics of canned Alaska red salmon prepared from brine-frozen fish follow:

Characteristics of Canned Alaska Red Salmon Prepared from Brine-Frozen Fish

Method of Thawing Fish Prior to Canning	Sample Number	Material Added to Each 1/2-Pound Flat Salmon Can			Characteristics of Canned Product			
		Water	Salt		Drained Weight	Total Liquid	Free Oil	Total Salt (NaCl)
		Milliliters	Grams	Percent 1/	Grams	Milliliters	Milliliters	Percent
In Air	1	0	1.94	0.85	206.8	21.5	1.5	2.04
	2	0	1.94	0.85	200.8	23.5	1.5	1.58
	3	0	1.94	0.85	200.6	23.5	3.5	1.65
In Still Fresh Water	1	0	1.94	0.85	198.8	26.0	2.5	1.58
	2	0	1.94	0.85	203.5	28.0	5.0	1.23
	3	0	1.94	0.85	204.0	24.0	2.5	2.18
In Running Fresh Water	1	0	2.54	1.12	202.3	27.0	2.0	1.76
	2	0	2.54	1.12	207.1	26.0	2.5	1.64
	3	0	2.54	1.12	193.7	30.0	2.0	1.65
In Running Fresh Water	4	18.0	2.83	1.15	211.2	35.5	2.0	1.66
	5	18.0	2.83	1.15	212.2	32.5	2.0	1.63
	6	18.0	2.83	1.15	201.9	41.0	2.0	1.70
In Saturated Brine	1	0	0.65	0.29	214.3	20.5	2.0	1.48
	2	0	0.65	0.29	200.3	23.0	1.5	1.60
	3	0	0.65	0.29	210.8	17.5	2.0	1.15

1/ ESTIMATED.

(Seattle)

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Freezing Fish at Sea, Defrosting, Filleting, and Refreezing the Fillets: Modifications were made on the absorption refrigeration unit aboard the research trawler Delaware which increased the refrigeration capacity by 60 percent. Further changes are being made in an attempt to raise the refrigeration output to the rated capacity of 20 tons. A new 40 kw. Diesel electric generator and switch panel were installed, tested, and approved. Stability tests were carried out on the Delaware. Results of these tests will determine the limitations which must be placed on the weight and location of a new brine-freezer.

A consumer taste panel has been built up to 120 families who will make regular tests on fish frozen at sea. The panel consists of families located over a wide area in metropolitan Boston and includes families in various income groups.

(Boston)

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BYPRODUCTS: Vitamin Content and Nutritive Value of Fishery Byproducts: Niacin assays of samples of fish meal were completed and the results follow:

Niacin Content of Samples of Menhaden and Crab

Sample	Sample Number	Source of Sample	Niacin Content of Meal, As Received
			Micrograms Per Gram
Crab Meal	1	Maryland	37
Menhaden Meal	1	Delaware	55
	2	Virginia	50
	3	North Carolina	53
	4	Florida	68
	5	"	70
	6	Louisiana	53

(Seattle)