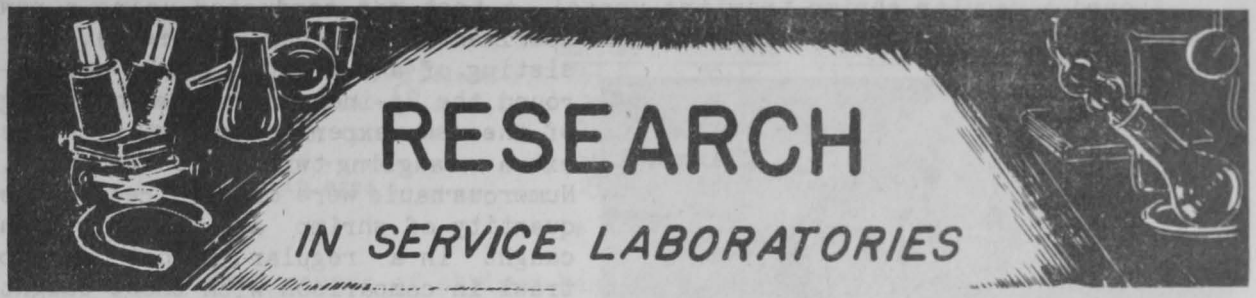


November 1948
Boston, Mass.

Samples of cod, hake, and haddock were frozen aboard the Albatross III for further study on freezing of fish at sea.

One lot each of round haddock and frozen round rosefish were stored in a commercial cold storage to determine the effects of prolonged cold storage on fish frozen in the round. With the exception of color, the fish frozen in the round from experiments conducted thus far seem to be superior in quality to iced and gutted fish of like species. The color of the fillets cut from iced fish was a bleached white, while the color of fillets cut from fish frozen in the round was darkened with a reddish tinge of blood vessels. The appearance, though not unsightly, was not that normally associated with commercially-produced fish products. Certain species of fish may have to be bled aboard ship before freezing to obtain a more desirable lighter color in the fillets. Further experiments are planned along these lines.

The relation of odor to trimethylamine content was consistent in that the odor, by organoleptic judgment, of fish frozen in the round at sea was considered superior to the odor of the fillets cut from duplicate samples of fish that were iced at sea. The percentage drip of fish frozen at sea was significantly lower than from fish iced at sea.

* * *

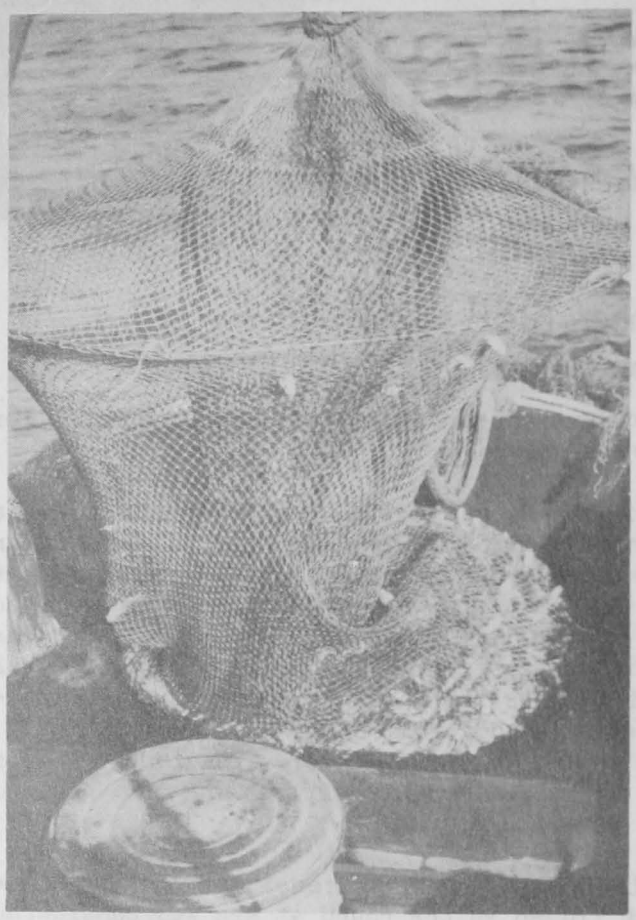
The first informal meeting of fishery technologists for the current season was held on November 4, and was attended by 25 technical men from the various companies in the New England area. A paper on "In-Plant Chlorination and Its Effect on Bacteria Reduction," by Stanley Hurley, was presented at the meeting.

Beaufort, N. C.

The testing of acetylated cotton twine, in cooperation with the Southern Regional Research Laboratory of the U. S. Department of Agriculture, was begun on November 9th. Arrangements were made for placing eight wooden test frames in a vertical position under water off one of the piers for determining the changes in tensile strength of the acetylated twines of different size in comparison with untreated and tar-treated twines on the same frames.

* * *

Aboard a regular shrimp trawling vessel, a test was conducted using a new experimental 50-foot shrimp trawl with an experimental tail bag (Figure 1), consisting of a bag with 1-inch mesh around the 2½-inch stretched mesh bag of the new experimental net with its extra entangling twines of soft cotton. Numerous hauls were made to record the quantity of shrimp and immature fish caught in a regular 50-foot shrimp trawl in comparison with those caught in the new experimental net. The large outside tail bag net collected the small fish and shrimp that escaped through the large special mesh of the new experimental tail bag.



NEW EXPERIMENTAL SHRIMP TRAWL, INSIDE OF TESTING BAG, WHICH COLLECTED IMMATURE FISH THAT WERE ABLE TO PASS THROUGH THE INSIDE NET.

In 22 hauls, the new experimental net showed an escapement of young food fishes varying from 68.6 percent to 90 percent, consisting of spot, croakers, sea mullets, hogfish, trout, and butterfish having a length of 4 to 9 inches.

Analysis of the collection and escapement of shrimp in these 22 hauls showed an average of 70.4 percent of the shrimp was retained by the entanglement features of the new type net. The 29.6 percent which escaped consisted almost entirely of small shrimp ranging from 50 to 75 count per pound. Since the small shrimp are also able to escape through the 1-inch mesh that is used on most of the commercial shrimp trawls, there was no noticeable difference in the number of shrimp caught per haul in the regular net and the new experimental net.

College Park, Md.

During November 1948, additional packs using pollock and croaker were prepared for the sandwich spread project to determine the practicability of using whole ground fish. On examination of the packs, it was found that the bone did not grind well and gave a very gritty consistency. The bits of skin appeared like dark flecks in the finished product.

* * *

Analyses have been made of a wide variety of cooked fish and shellfish dishes. Typical analyses of several of these are as follows:

	Dry Matter	Protein Content	Fat Content	Calories per/100 gm.
Oven-fried rosefish fillets ..	43.9	20.1	13.7	236
Molded crab salad	24.3	10.7	5.7	118
Deviled shrimp	38.2	11.5	7.5	181
Clam fritters	55.1	11.7	11.1	267
Crab salad in eggs	23.9	13.8	7.5	128

* * *

Three hundred pounds of striped bass were obtained in a strictly fresh condition, and filleted, packaged, and frozen for the fluctuating temperature storage tests. No appreciable changes in quality are as yet noticeable in the striped bass fillets.

* * *

After three months of storage, tightly wrapped and loosely wrapped Boston mackerel fillets, held at constant temperatures of -10° F. and 0° F., and those in a tight wrap at temperatures fluctuating between -10° F. and 0° F., were still satisfactory as judged by palatability tests. Fillets in a loose wrap at temperatures fluctuating between -10° F. and 0° F. were on the borderline of acceptability. Unsatisfactory scores were obtained for the fillets held at 15° F., and the lowest scores were for those fillets held at fluctuating temperatures between 0° F. and 15° F. Fillets held at 15° F. and at fluctuating temperatures between 0° and 15° F. were extremely rancid. The quantity of "drip" upon thawing remains fairly constant for all samples.

Ketchikan, Alaska

For conducting studies of clam processing methods, large quantities of clams were dug and distributed into representative lots, some of which were tested raw and others processed in a variety of ways. The processed clams were extracted and tested with mice to determine the effectiveness of the various experimental processing procedures. The results obtained in the tests demonstrate that it is advantageous to process at high temperatures and for long periods of time. The addition of alkali to the canned product reduces the toxin, but when sufficient alkali is added to completely destroy the toxin, the quality of the clam meats has also been reduced.

Seattle, Wash.

Examination of control and refrozen fillets of yellowfin, rock, and lemon flounder, after a total storage period of five months at 0° F., indicated that with these species, refreezing did not result in serious changes in texture, did not increase the percentage drip of fillets on thawing, and did not result in adverse color or flavor changes. Lower ratings which have been received by fillets prepared and frozen aboard vessel in the Bering Sea have shown the importance of promptly and properly handling and freezing fillets aboard ship.

Samples of five species of flounder (English, sand, yellowfin, flathead, and rock) frozen in the round aboard the Service's vessel, Washington, in Alaskan waters, were thawed, filleted, packaged, and refrozen under commercial conditions at a local filleting plant. Preliminary examinations have substantiated the observations on the refrozen fillet series previously mentioned. Average yield of

skinned fillet from all five species was 29.0 percent. Estimation of labor costs for filleting and comparison of the yield figures with those from usual filleting operations indicated no great disadvantage in the handling of frozen Alaskan flounder.

* * *

In further studies of the precision of the AOAC method for determination of oil in fish meal, it was found that identical results were obtained with alundum or paper thimbles. Likewise, identical results were obtained with specially dehydrated acetone as with acetone containing small traces of water. Using the Bailey Walker extraction apparatus, it was found that the total extractives increased continuously with increasing time of extraction. Even after 124 hours extraction, a small increase in extractives was found upon subsequent additional extraction.

OVEN FRIED FILLETS

2 pounds fillets
1 tablespoon salt
1 cup milk
1 cup bread crumbs
4 tablespoons butter or other fat

Cut fillets into serving size portions. Add the salt to the milk and mix. Dip the fish into the milk and roll in crumbs; place in a well greased pan. Sprinkle each piece of fish with melted fat. Place pan in a very hot oven 500° F. and bake 10 to 12 minutes. Serve at once on a hot platter, plain or with a sauce. Serves 6.

Cod, haddock, or other fillets may be used in the above recipe.