



RESEARCH

IN SERVICE LABORATORIES

July 1951

REFRIGERATION: Freezing Fish at Sea, Defrosting, Filletting, and Refreezing the Fillets: The shakedown cruise of the experimental technological research trawler M. V. Delaware of the U. S. Fish and Wildlife Service indicated numerous changes and adjustments on the refrigeration and fish-handling equipment. While these changes were being completed, other maintenance and repair tasks were carried out, including scraping and painting vessel superstructure and deck gear, overhauling one of the Diesel electric auxiliaries, and modifying the wiring and piping systems in the engine room. Negotiations are under way to replace the inoperative foreign echo sounders with U. S. equipment. The installation was tentatively scheduled for late in July. (Boston)

Studies on Methods of Handling Frozen Salmon for Canning: Current tests are almost completed on the study of the effect of freezing and storing salmon on the quality of the subsequent canned product. Comparisons were made of test packs canned during 1949 and 1950 from pink (Oncorhynchus gorbusha) and red salmon (O. nerka) frozen and stored under varying conditions of time and temperature. These tests have shown that exposure of frozen fish to oxidation and desiccation and length of frozen storage are the most important factors affecting the quality of the canned product. Frozen salmon must be heavily glazed and stored not over 6 to 8 weeks at 0° F. in order to minimize adverse changes of color, texture, and flavor in the canned product. Within practical limits, the rate of freezing and temperature of storage below 0° F. were not important factors. This work has also shown the need for additional study of the chemical and physical changes in salmon meat during the freezing and canning process if we are to better understand the cause of the adverse changes in texture.

Penetrometer tests made on canned pink salmon prepared from frozen fish and canned fresh pink salmon have shown that the texture of the salmon, frozen and stored at 0° F. for 6 weeks prior to canning, has changed almost as much as that stored at 0° F. for 24 weeks. Pink salmon stored for one week prior to canning showed a slight change in texture but not as great as that stored for 6 weeks. Increase in the toughening of the flesh is reflected by a decrease in the penetrometer readings. The average penetrations of 48 runs on each series were as follows:

CONTROL (CANNED FRESH)	21.5 MM.
1-WEEK STORAGE PRIOR TO CANNING	19.0 MM.
6-WEEKS STORAGE PRIOR TO CANNING	13.1 MM.
24-WEEKS STORAGE PRIOR TO CANNING	10.7 MM.

(Ketchikan)

* * * * *

FISH COOKERY: The final assembling of 100 recipes for the Alaska Seafood Recipes cookbook has been completed. Three agencies, The Alaska Fisheries Experimental Commission, The University of Alaska Extension Service, and the Alaska Development Board are cooperating in providing funds for the publication of the cookbook. Ten thousand copies will be printed for free distribution. (Ketchikan).



BROILED OYSTERS ON THE HALF SHELL



36 SHELL OYSTERS
1/2 TEASPOON SALT
1/8 TEASPOON PEPPER

1/2 CUP BREAD CRUMBS
2 TABLESPOONS BUTTER
OR OTHER FAT

Shuck and drain oysters; place on deep half of shells. Sprinkle with salt, pepper, and buttered bread crumbs. Place on preheated broiler pan, about 3 inches from heat, and broil for 5 minutes or until brown. 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.