

TECHNOLOGICAL RESEARCH IN SERVICE LABORATORIES

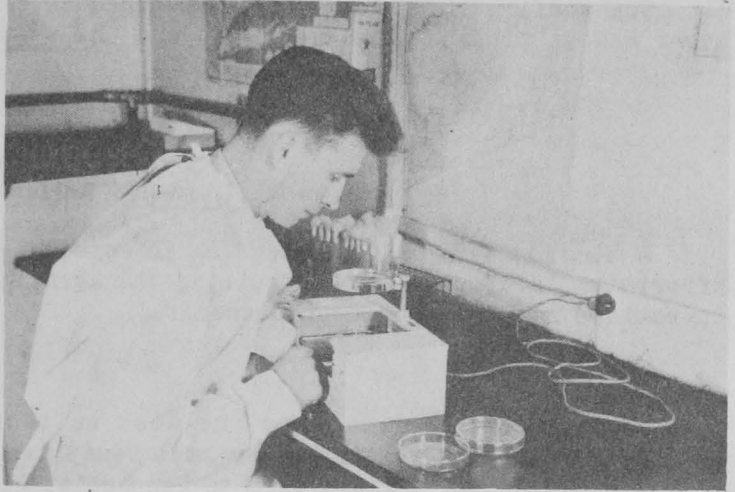
MARCH 1947

College Park, Md.

Two air shipments of crab meat and Pacific oysters with corresponding shipments by railway express were made from the Seattle Laboratory to the College Park Laboratory in connection with the air-borne fresh fish project. Shipments of air-borne fresh fish between Florida and the College Park Laboratory were increased over those of the previous month.

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The regular monthly examination of frozen Spanish mackerel and sea trout fillets wrapped in various types of moisture-vapor-proof films has shown no definite trend in flavor changes of the fillets. The frozen oysters in different types of packages have shown very little change in pH values and their flavor is remaining satisfactory.



COUNTING BACTERIA COLONIES

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Several laboratory tests were made with insulated shipping containers for possible use in shipping frozen fish. The results were quite variable between the different types of containers and it appears that dry ice will be required inside the packages if a shipping period of more than two days is necessary.

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An A.O.A.C. assay to determine the vitamin D content of two seal oil samples indicated that the blubber oil and carcass oil in each contained about 25 International Units of vitamin D per gram.

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Home economists gave four fish cookery demonstrations in Milwaukee, and spent three days in Minneapolis in a "workshop" discussion period and fish cookery demonstrations with extension specialists at the University of Minnesota. Ten demonstrations were given to a total of 643 persons in North Carolina.

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Palatability tests were conducted on 20 samples of frozen mackerel fillets, 18 samples of frozen oysters, 14 samples of frozen sea trout, and 22 samples of fresh fish in the Florida air shipment tests.

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Eight recipes were tested to determine the palatability of canned silver hake.

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The survey of the antibacterial spectrum of the organism under study was continued using various agar media. Results obtained so far indicate that the inhibitory substance tends to be more active against molds than against bacteria.

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The confirmatory tests on the enterococci cultures isolated during the Parker River Refuge project were completed and the results tabulated.



Boston, Mass.

A study is being made of herring infected with fungus Ichthyosporidium hoferi. Efforts to develop methods of culling the herring at some point in sardine canning operations have not yet been successful.

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Assistance in determining the most suitable types of fishing gear for two exploratory fishing vessels being made ready for operations in the Gulf of Mexico was provided during a field trip to Pensacola, Florida. Several new fishing areas have been located at depths (80 to 100 fathoms) greater than those usually fished. The hand line now in use is difficult and cumbersome to operate at these depths. Power gurdies to pull in hand lines have been tried but have not proven entirely satisfactory. A mechanical reel using a fluid drive motor as a power source was suggested as an improvement for hauling in hand lines. A collapsible fish pot of the design used in the West Indies was suggested as a secondary gear.

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At the request of an air lines company, a lobster shipping box was given a 24-hour holding test at 90° F. Twelve lobsters and a recording thermometer were packed in the box in eelgrass with 10 pounds of ice in a special tray at the top. After 24 hours, nine lobsters were alive and there were two pounds of unmelted ice. The inside temperature of the box did not go above 50° F. The three dead lobsters were on the bottom of the box in water from the melted ice. The box is being redesigned so that none of the lobsters will be in water.

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New lots of smoked pollock fillets were prepared using frozen fish. Some fillets were hot smoked. These fish are being submitted to interested parties for criticism.

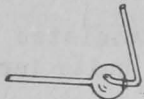


Ketchikan, Alaska

A thorough survey of the Alaska beaches to determine the extent of mytilotoxine in the butter clams cannot be made due to lack of funds, so it is planned to collect samples by whatever means possible. Efforts are being made to devise processing methods which will destroy any material that is toxic.

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Tests on the canning and freezing characteristics of sea cucumbers were made using specimens provided by a local diver. One minced lot was canned.



Mayaguez, P. R.

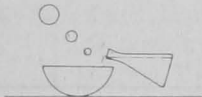
Scheduled educational field trips were made to production centers and to wholesale and retail establishments.

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Fish poisoning work was resumed on a shipment of fish from the Virgin Islands. Feeding tests were conducted but no positive results were recorded.

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A cooperative project on oysters is being conducted with the University of Puerto Rico.



Seattle, Wash.

Storage tests on frozen king crab are beginning to indicate that this species may have better frozen storage properties than Dungeness crab.

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Use of NDGA as an antioxidant for frozen pink salmon and steelhead, either alone or with carrying agents, does not appear promising, at least using aqueous or oil dips of the antioxidant for the fish fillets. No improvement in storage life of the fish was indicated when the antioxidant was applied in these ways.

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Two members of the Seattle staff attended the Frozen Foods Exposition in San Francisco and helped with the Fish and Wildlife Service booth.

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A fishery display was setup at the Washington State Home Economics Association Conference at Ellensburg, Wash.

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A fish cookery demonstration was given at the University of Washington to 50 home economics students.

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The large mobile trailer laboratory was in use at South Bend, Wash., during the month. A preliminary study of correlation of pH of Pacific oysters to spoilage did not give any indication that pH of oysters taken in this area was generally lower than that of Eastern oysters at the same stage of freshness. Some bacteriological tests of crab meat were also conducted.

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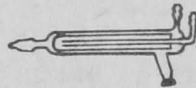
Chemists of a cooperative were assisted in the dehydration of ling liver stickwater waste for the recovery of a quite large quantity of vitamin A contained therein.

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Vitamin assays were carried out on oils prepared from salmon viscera, total salmon waste, and salmon tail sections.

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Recipes using frozen smelt and canned minced razor clams were tested.



FISH REDUCTION PROCESSES

Reduction of fish and fish waste to fish meal and fish oil has been the basis for commercial operations along our seacoasts for many years. Methods employed have changed with the gradual improvements in equipment available for adaptation to the peculiar needs of the operators and with the background of practical experience that only actual plant operation can develop. The fish processors' control over raw materials harvested from the sea is very limited even as to quantity and quality. Localized adaptations of plant equipment and day to day changes in technique of operations by plant crews have been as important as have been the original designs of factory installations.

--Fishery Leaflet 126