TECHNOLOGICAL RESEARCH IN SERVICE LABORATORIES

APRIL 1946

Seattle, Wash.

A device for molding fish for freezing has been built and is in the process of being tested.

Tests were made on oysters which were flown from Norfolk, Virginia, to Seattle. The results indicated that air transport can be used effectively for long-distance shipment of oysters.

The effect of the pH of the culture medium used for making bacteriological plate counts has been studied. Maximum counts were obtained at pH ranges from neutral to slightly acid.

Recipes have been tested for canned tuna and canned salmon for use on labels of these products.

Several new precooked frozen food products have been developed and storage tests started.

The Service's Seattle Laboratory presented a display of packaging materials and techniques at the Northwest Locker Plant Convention held in Portland, Oregon, April 24-25, inclusive.

Examination was made of frozen crabmeat stored for 9 months at 3° F. The cellophane bag and friction-top package packs were extremely tough and straw-flavored, but the vacuum packed crabmeat was tender and palatable.

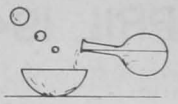
Samples of fillet waste are being obtained for an investigation of oil extraction. At present, a series of extractions are being made using a benzene-methanol solution mixture followed by water digest and reextraction.

Preliminary preparations have been completed for a study of the stability and loss of vitamin A during storage of fish livers.

Boston, Mass.

Experiments have been made to determine the feasibility of an air separator as a means of grading sardines according to size. The results indicate that un-

less a device can be contrived that will cause the fish to strike the air blast in a uniform manner, no practical application of an air separator will be possible.



College Park, Md.

A national packaging exposition, sponsored by the American Management Association, was held in Atlantic City from April 1-5, inclusive, for the purpose of acquainting the industry and other interested parties with newer developments in packaging. Among the displays were packaging and wrapping machines. Since much of the material is still in the developmental stage, some samples are being sent to the College Park Laboratory for testing. As the use of aluminum foil is being emphasized in the packaging field, its use in the fishery industry is also being investigated at the laboratory.

A new lot of frozen packaged oysters was placed in storage for tests. They are being held at -10°, 0°, and +10° F. Separate packages were prepared for periodic bacteriological examinations.

The first of a series of monthly examinations was made of the frozen oysters packaged in March in foil packages. A drop in pH of about 1.5 had occurred but no corrosion of the foil was noticeable. Also, an examination of oysters frozen on the half shell was made. Those glazed with ice and wrapped in moisture-proof cellophane were in good condition after 6 weeks storage, but those covered with a coating of gelatin-glycerine-water had begun to show signs of desiccation.

A shipment of 180 pints of fresh shucked oysters was made by air to Chicago from Norfolk, Virginia, on April 9. Two types of containers and two degrees of precooling were tried with excellent results. Answers from a limited number of questionnaires given to purchasers of the air-borne oysters uniformly classified the quality of the oysters as superior.

A shipment of 12 gallons of fresh shucked oysters was made by air from Norfolk, Virginia, to Seattle, Washington. These were shipped on April 11 and arrived in excellent condition.

Laboratory tests have been initiated to determine the insulating value of several types of shipping containers suitable for use in air transport.

Temperature is still regarded as the controlling factor in the development of undesirable color in blown menhaden oil. A number of samples of oil were processed during the month using laboratory-made and commercial driers. In all cases, those oils blown at 95° C. were too dark by the time a satisfactory viscosity was obtained. One sample blown for 48 hours at 58° C. and containing 0.15 percent cobalt oleate was very light in color.

Feeding experiments started about 10 months ago with hens fed DDT treated crabmeal continue to show no decrease in egg production.

A second series of chicks have completed the twelve-week test on DDT. These have been necropsied and organs perserved for chemical analysis and pathological

studies. The highest dosage of DDT produced a slight effect upon the growth of the chicks, but they survived.

Four school lunch demonstrations were given in cooperation with the School Lunch Program in Chicago. Two of the demonstrations dealt with lunches for elementary schools and the other two for high schools. Approximately 75 supervisors, managers, and cooks were present at each. A set of 17 tested fish recipes, suitable for school use, was given to each person attending the demonstrations.

Cultures of bacteris isolated from "poisonous" fish in Puerto Rico and the Virgin Islands have been identified. The entire problem of poisoning due to the ingestion of fish has been reviewed and a report begun.

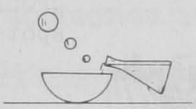
Studies of the effectiveness of chemical dip treatments in retarding bacterial spoilage of oysters are being continued.

A variety of frozen foods other than fish have been used for determining the value of a new penicillin culture medium for the detection of enterococci. The findings to date indicate that this medium may be very helpful in detecting fecal pollution.

Two samples of pasteurized caviar were examined bacteriologically and found to be practically sterile.

Preliminary work has been started on the search for antibiotic substances of marine origin.

The ecological study of the fecal streptococci and their relation to fecal pollution has continued. Soil samples from pasture and animal pens have yielded enterococci, but these microorganisms have not been isolated from soils of wooded lands or lands that have not recently been fertilized with animal excreta.



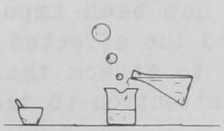
Ketchikan, Alaska

Experiments are underway to test the validity of the proposed procedure for the determination of riboflavin.

Studies are being made of the filleting characteristics of Alaska rockfish.

Preliminary arrangements have been made for a study of shellfish poisoning in Alaska clams.

Preparations have been made, under a cooperative research arrangement with Wayne University, for the experimental shipment by air of fresh troll-caught king salmon to Detroit.



Mayaguez, Puerto Rico

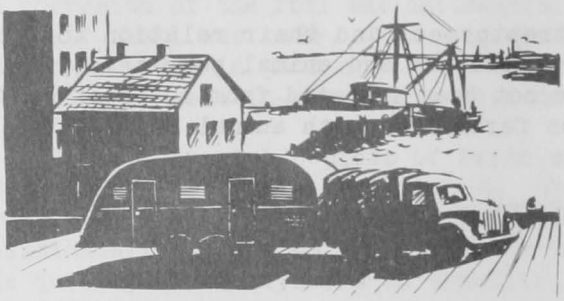
Data has been collected and tabulated on the economic aspects of the fishing industry of Puerto Rico. The combined operations of four wholesalers amounted to net sales of $135,179.04; cost of fish sold, $84,635.97. Salaries and wages, trucking expenses, ice, and depreciation made up the principal items of expense.

Research is being continued on fish-poisoning specimens from the Virgin Islands.

Mobile Laboratories

Three mobile research laboratories, equipped to make field studies of problems in the production and handling of fishery products, will be placed in operation by the U. S. Fish and Wildlife Service this week, Albert M. Day, Director of the Service, announced on May 9.

The mobile laboratories will supplement the work of the three permanent laboratories now maintained by the Service in the United States--at Seattle, Boston, and College Park, Md.--for technological research in fishery problems. The portable laboratories are housed in standard trailers towed by trucks and will move from place to place as critical problems demanding immediate, on-the-spot attention may arise.



One of the laboratory trailers has been assigned to the Pacific Coast; one to the Atlantic and Gulf Coasts, from Chesapeake Bay southward; and the third to the Atlantic Coast, from Chesapeake Bay north. This last unit will also be assigned, when necessary, to problems of the lake and river fisheries.

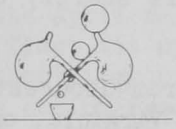
During the early months of their operation, the mobile laboratories will be used chiefly in studying problems of sanitation related to the handling of such perishable seafoods as crabs, oysters, and many kinds of fish. They will be used later in a variety of other studies, ranging from the preservation of fishing gear to the development of improved processing methods.

"The mobile laboratories will make it possible for us to do a much more effective job of solving those producing, processing, and distributing problems of the commercial fishing industry which require immediate attention in the field," Mr. Day said. "With only three continental laboratories serving all the coastal and interior fishing areas, it often has been impossible to investigate localized problems because of the distance to the affected area. With the new trailer laboratories, we are now in position to attack these problems at their source with the proper equipment and can give attention to technical problems in even the most isolated fishing district."

Among typical local problems, on which the portable laboratories are expected to prove useful, Mr. Day cited the losses sustained by fishermen in certain Oregon waters during the fall months through the rapid and excessive deterioration of fish netting; the fact that processing methods need to be developed for anchovies, an abundant and almost untapped resource off the Pacific Coast; and the need of better methods for handling and processing fish and crabs in many Pacific Coast localities.

In the South Atlantic and Gulf areas, better freezing and other handling methods are needed to make the southern fishery resources available to a wider market, Mr. Day said. In addition to such studies, the trailer laboratories will probably be used in investigating the possibilities of producing fish meal from materials now wasted.

In the North and Middle Atlantic areas, it is expected that the mobile units will be used as centers for demonstrating better handling and processing methods to workers in the fishing industry, for studies of gear preservation, and for developing more complete utilization of waste materials.



FISHERY TECHNOLOGICAL LABORATORIES

	Address	In Charge
Fishery Technological Laboratory	P. O. Box 128, College Park, Md.	Dr. L. A. Sandholzer, Acting Tel.-WArfield 5800
Fishery Products Laboratory	P. O. Box 647, Ketchikan, Alaska	H. W. Magnusson Tel.-540
Fishery Research Laboratory	P. O. Box 1345, Mayaguez, P. R.	P. Vergne Roig Tel.-390
Fishery Technological Laboratory	2725 Montlake Blvd., Seattle 2, Wash.	M. E. Stansby Tel.-EAst 5039
Fishery Technological Laboratory	Room 710, Appraisers Stores Bldg., 408 Atlantic Ave., Boston 10, Mass.	J. F. Puncochar Tel.-LIberty 0168