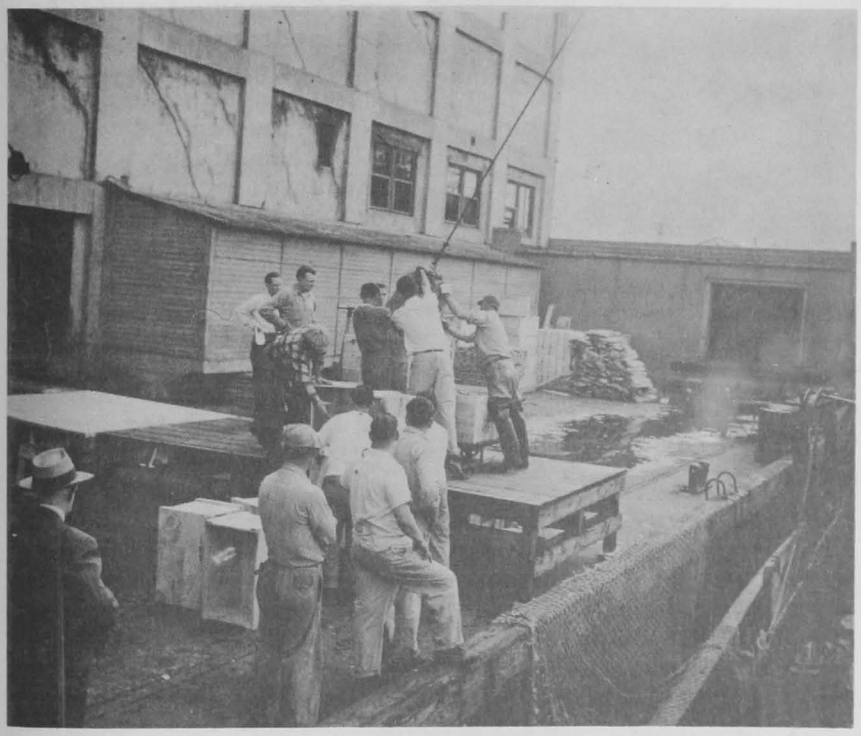
BRINE-FROZEN HADDOCK TESTS BY INDUSTRY

The stimulation of industry interest in freezing New England groundfish at sea and also to acquaint members of the local fishing industry with methods of handling and processing fish frozen at sea were the objectives of a project recently initiated by the East Boston Fishery Technological Laboratory of the U. S. Bureau of Commercial Fisheries.



INTERESTED INDUSTRY MEMBERS OBSERVE TECHNIQUES DEVELOPED TO UNLOAD FISH FROZEN AT SEA FROM THE HOLDS OF THE BUREAU OF COMMERCIAL FISHERIES' EXPLORATORY VESSEL DELAWARE.

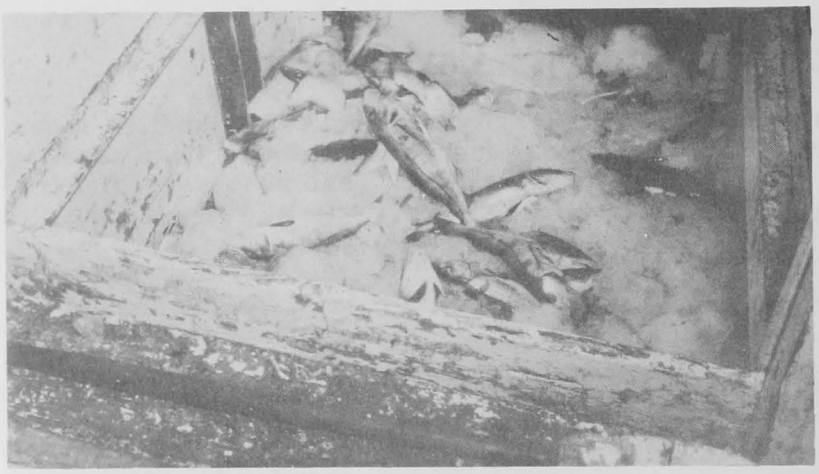
About 54,000 pounds of haddock brine-frozen aboard the Service's experimental trawler Delaware were landed at Boston in July and distributed among 23 fish dealers and processors who previously indicated their willingness to participate in testing these fish.

The brine-frozen fish will be kept in storage at 0° F. and sampled by industry members at intervals during frozen storage. These participants will thaw and fillet the fish, refreeze the fillets, and test-market them in the manner customarily employed in the groundfish industry. The fish will be examined by industry members and laboratory personnel during the various stages of the experiment and the information collected will be used to improve and further develop techniques for processing, marketing, and distributing brine-frozen fish.

NEW VESSEL FISH-ICING TECHNIQUES PROVE VALUE TO NEW ENGLAND FISHERIES

A new fish-icing plan aboard vessels is proving its worth to the New England groundfish industry by getting fresher fish on the consumer's dining table, the United States Fish and Wildlife Service reported September 27, 1957.

The impetus behind the increasing usuage of new fish-icing techniques is a series of full-scale, commercial demonstrations aboard fishing vessels at sea. The work is being done by the Massachusetts Division of Marine Fisheries and is sponsored by the Service's Bureau of Commercial Fisheries with funds supplied through the Salton-stall-Kennedy Act of 1954 for improvement of the domestic fishing industry. Boston-based vessels are used in the demonstration. Full loads of fish iced according to techniques developed by the Bureau of Commercial Fisheries are compared with loads iced under conventional methods.



ICED HADDOCK IN THE HOLD OF A NORTH ATLANTIC TRAWLER

The new method relegates to "Davy Jones" many of the practices which have been followed for years. In some instances it has been difficult for boat owners to initiate changes, but the pressure of economics is beginning to outweigh the force of tradition. These new icing practices are a long step toward answering public demand for a uniformly better product.

Bureau of Commercial Fisheries' research has shown that the process of getting full-flavored fish to the family table begins at the time the fish are taken out of the water--and that mistakes made in that first hour cannot be rectified later.

The new technique is simple. Fish are eviscerated and each fish is thoroughly washed immediately after being caught; each individual fish is surrounded by sufficient ice to chill it rapidly and keep it chilled. Much of the secret of the success in handling fish by the new method is in the way the fish are stored and iced. After the Bureau of Commercial Fisheries developed the technique, it entered into a contract with the Massachusetts division of Marine Fisheries to demonstrate proper handling and icing techniques under commercial fishing conditions.

Through the cooperation of the industry, a man trained in the Bureau's new method goes aboard fishing vessels and demonstrates the handling and icing of the fish. In port, under the supervision of State inspectors, the results of the improved method can be compared with results from conventional means. The entire load of fish from one such demonstration cruise was recently adjudged "the best fish seen in this port for a long time."

The Bureau of Commercial Fisheries also has a contract with the National Fisheries Institute for the development of "Rules and Guidelines" for proper procedures in handling fish aboard vessels and in processing plants.

PLAN FOR DEVELOPMENT OF FEDERAL SPECIFICATIONS FOR FISHERY PRODUCTS

The Bureau of Commercial Fisheries has set the following goal for development of Federal fishery products specifications during the year ending June 30, 1958.

Shrimp, Frozen, Raw; Breaded--prepare new specification; Fish, Fresh (Chilled) and Frozen--revise present specification; Tuna Fish: Canned--revise present specification; Clams, Raw, Shucked; Fresh (Chilled) and Frozen--amend present specification; and Lobsters, Live, Chilled and Frozen--prepare new specification.

This is a coordinate research and development program between the Bureau's Fishery Technological Laboratory, at East Boston, Mass., and The Quartermaster Food and Container Institute for The Armed Forces, Chicago, Ill. The Bureau's responsibility involves (1) evaluation of the specific product needs of the various Federal agencies, (2) evaluation of commercial products, (3) conduct of research in developing the specification requirements, and (4) preparation of the specification and coordination with industry and other Federal agencies.

SCALLOP MEATS FROZEN IN GLUCOSE-SALT SOLUTION ABOARD VESSEL

A possible new development in the scallop industry, the immersion-freezing of scallop meats in a solution of glucose and salt aboard a scallop dragger, is under investigation by the Fishery Technological Laboratory of the Bureau of Commercial Fisheries at East Boston, Mass.

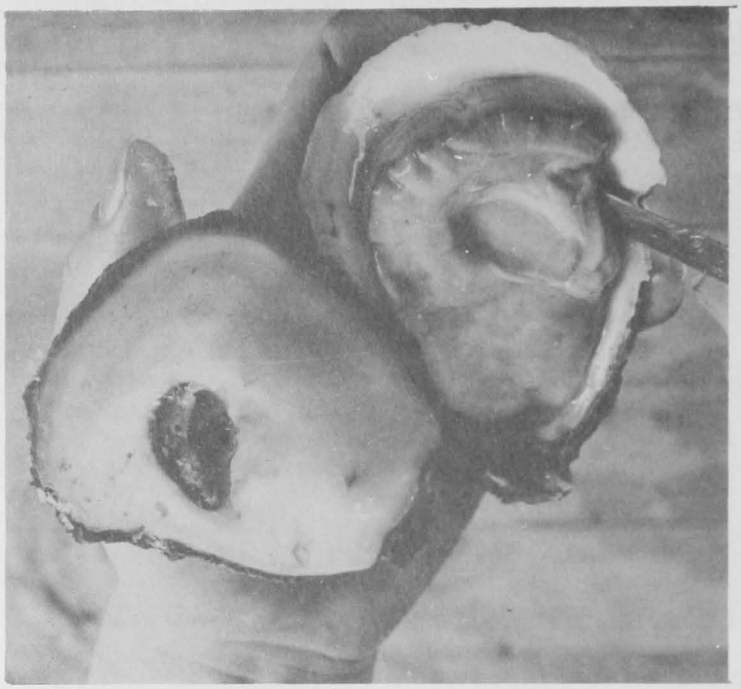
The Bureau's Exploratory fishing trawler Delaware arrived in New Bedford, Mass., in August with 500 pounds of scallop meats frozen at sea in a glucose (20 percent)--salt (20 percent) solution at a temperature of 0° F. The scallop meats separated easily after freezing and were then packed in 5-pound cartons and stored at 5° F. in the vessel's refrigerated hold.

THE BUREAU OF COMMERCIAL FISHERIES' EXPLORATORY VESSEL DELAWARE APPROACHING DOCK AT CONCLUSION OF FREEZING-SCALLOPS AT-SEA VOYAGE.

The frozen scallop meats were unloaded from the vessel at New Bedford and put into a local cold-storage plant. Industry members and personnel from the Laboratory will evaluate the frozen scallops at periodic intervals during frozen storage. Information obtained may well provide a basis for the adoption of freezing scallops at sea by the local fishing industry.

STRUCTURE AND FUNCTION OF THE KIDNEY IN THE OYSTER[1/]

The major anatomical relationships, with the glaring exception of the excretory system, have been elucidated in the oyster Crassostrea virginica. To correct this deficiency, the structure and function of the kidney (organ of Bojanus) and associated structures were determined. The structure was examined (1) grossly by injection of vital dye and observation of its distribution and (2) microscopically by sectioning preserved oysters. Two bladders are present, one on each side of the animal, with a tubular portion in between. On each side a funnel-shaped duct runs from the floor of the pericardium to the bladder and opens near the origin of the urinary pore. The latter opens to the exterior immediately posterior to the genital pore. Both openings are covered by a common flap. Injection of dye revealed that the tubules of the kidney are bathed in blood from the adductor muscle that is supplied directly by the heart. The blood then leaves the tubules for the gills.



OYSTER

When oysters were maintained in extremely diluted sea water, the blood remained more concentrated than the environment. The situation was reversed when the oysters were placed in extremely concentrated sea water. Measurements of the chloride concentrations of the blood and fluids from the pericardial cavity and bladder revealed that only in the most dilute medium is there a possibility that the kidney serves as an osmoregulatory organ. The wall of the ventricle appears to be the primary organ of salt filtration. In the lowest salinity tested the pericardial fluid was less concentrated than the blood, indicative of water elimination to keep the oysters more concentrated than their environment; whereas at higher concentrations the pericardial fluid was more concentrated than the blood, indicative of salt elimination to keep the oysters less concentrated than their environment. The kidney tubules, however, do seem to be involved directly in elimination of nitrogenous waste products.

1/THIS INVESTIGATION WAS CONDUCTED UNDER A CONTRACT BETWEEN TULANE UNIVERSITY AND THE U. S. BUREAU OF COMMERCIAL FISHERIES WITH FUNDS PROVIDED BY THE SALTONSTALL KENNEDY ACT OF 1954.

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