# DEPARTMENT OF THE INTERIOR

## INFORMATION SERVICE

FISH AND WILDLIFE SERVICE

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Guaranteed storage life of a week or more insuring fresh product at the end of shipments of over 1,000 miles is offered producers and retail dealers following recommendations carried in Research Report No. 1, Studies on the Handling of Fresh Mackerel, by M. E. Stansby and J. M. Lemon, technologists of the Fish and Wildlife Service, United States Department of the Interior.

Chief among recommendations to producers concerns the present practice of floating mackerel in sea water for shipment.

"Discontinue this practice," advise the Service technologists and ship your mackerel--eviscerated--in boxes of finely crushed ice. If for any reason mackerel must be floated, use sea water that has been chlorinated. Under these circumstances a label should be affixed to each barrel, warning dealers to remove the fish from the barrel immediately upon receipt and pack them in ice, and indicating that the barrel is intended only as a shipping container, and not for storage purposes. This practice would add but very little to the cost of production, and would materially assist in the general improvement of present retail handling methods.

In no case--to producers, finally--"should mackerel be shipped more than 400 miles by the floating method. For distances of 400 to 1,000 miles icing in

the round will usually be sufficient. However, for distances of more than 1,000 miles mackerel must be eviscerated and iced."

This same information, in slightly different form, is offered as recommendations to retail fish dealers:

1. In dealing with the wholesaler emphasize a preference for mackerel which have been shipped in ice, similar to the manner in which other species are handled.

2. When mackerel are received in barrels (floated) they should be removed from the water immediately and be repacked in crushed ice.

3. Mackerel which are eviscerated will keep much better than if left in the round. Therefore, it is to your advantage to eviscerate (dress) the mackerel you receive before placing them on sale, thus reducing losses due to spoilage. In adopting this method, you will also provide your customers with mackerel in the best possible condition—a service which should materially increase the demand for fresh mackerel.

Each recommendation logically follows some discovery unearthed in their course of investigation by Stansby and Lemon. Chemical tests—for example, showing that the oil content of mackerel varies with size and season from a minimum of about 2 percent in the spring to a maximum of 20 percent or more in late summer—indicate spoilage here is a more complicated problem than with many other species. In addition to the ordinary types of fish spoilage, this high oil content makes rancidity a problem of considerable importance.

These, and other factors found, lead to the conclusion (based upon further other studies) that: mackerel will keep in much better condition if packed in finely crushed ice than if floated in sea water, as is now practiced

by the industry. Mackerel stored by the floating method keep in good condition for only about 4 days. When stored in boxes of ice the storage life is increased to a week or more.

Three additional findings point the way to lessening of bruising and bleaching while in transit, savings on express rates, and reasons for eviscerating the fish to gain shipping time.

"The (North Atlantic) mackerel industry," according to the authors, "is confronted with the problem of a widely fluctuating supply of fish and a very limited market. At times when mackerel are found in great abundance the price often falls to levels below production costs. By widening the market, these large fluctuations in price could be considerably diminished, greatly stabilizing the industry. By adopting improved methods of shipment these fish can be transported to Midwestern markets in much better condition than under methods now prevailing, thus increasing the popularity of fresh mackerel and creating an outlet for the surplus which cannot readily be absorbed by the present limited market along the Atlantic seaboard."

The whole mackerel fishery is eighth in volume and fourteenth in value among the more than 150 food fisheries of this country. That of the North Atlantic mackerel had been made subject for this investigation by the authors for almost five years prior to publishing the present studies. These were conducted as a basis for recommendations leading to increased distribution and popularity of mackerel, and improved handling methods to assure a better product for ultimate consumers.

A 46-page illustrated booklet, the report contains materials of value to scientist and economist as well as producer, market man, and distributor. A brief history of the mackerel industry, from its beginnings in this country in the 17th century, rounds out the publication, which may be purchased for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C.