

Fig. 1 - Area of calico scallop explorations by BCF research vessels 'Silver Bay' and 'Oregon,' 1960-1968, and area of major effort by commercial calico scallop fishing fleet, 1969.

CALICO SCALLOP FISHERY OF SOUTHEASTERN U. S.

A Photo Review of Latest Developments

Robert Cummins Jr. and Joaquim B. Rivers

Numerous sporadic attempts to develop automated processing equipment for calico scallops have culminated in the construction of four factory-type scallop vessels. These are equipped with processing machinery that automatically sorts the catch and shucks and eviscerates live scallops at sea. The vessels began fishing in early 1969. The equipment had been used successfully only for shore-based processing in North Carolina, so initial operations consisted primarily of modification and refinement of the system for use aboard ship at sea.

Cape Kennedy Grounds

The vessels have operated on the Cape Kennedy grounds out of the Florida east coast ports of Ft. Pierce, Port Canaveral, and St. Augustine (Fig. 1). The largest of the four vessels, 'Kon Tiki No. 1', recently was diverted to fishing in Central America because of domestic labor problems. The other vessels, 'Ruth M.', (Fig. 2), 'Shéela L.', and 'Venture', have been operating with variable successes.

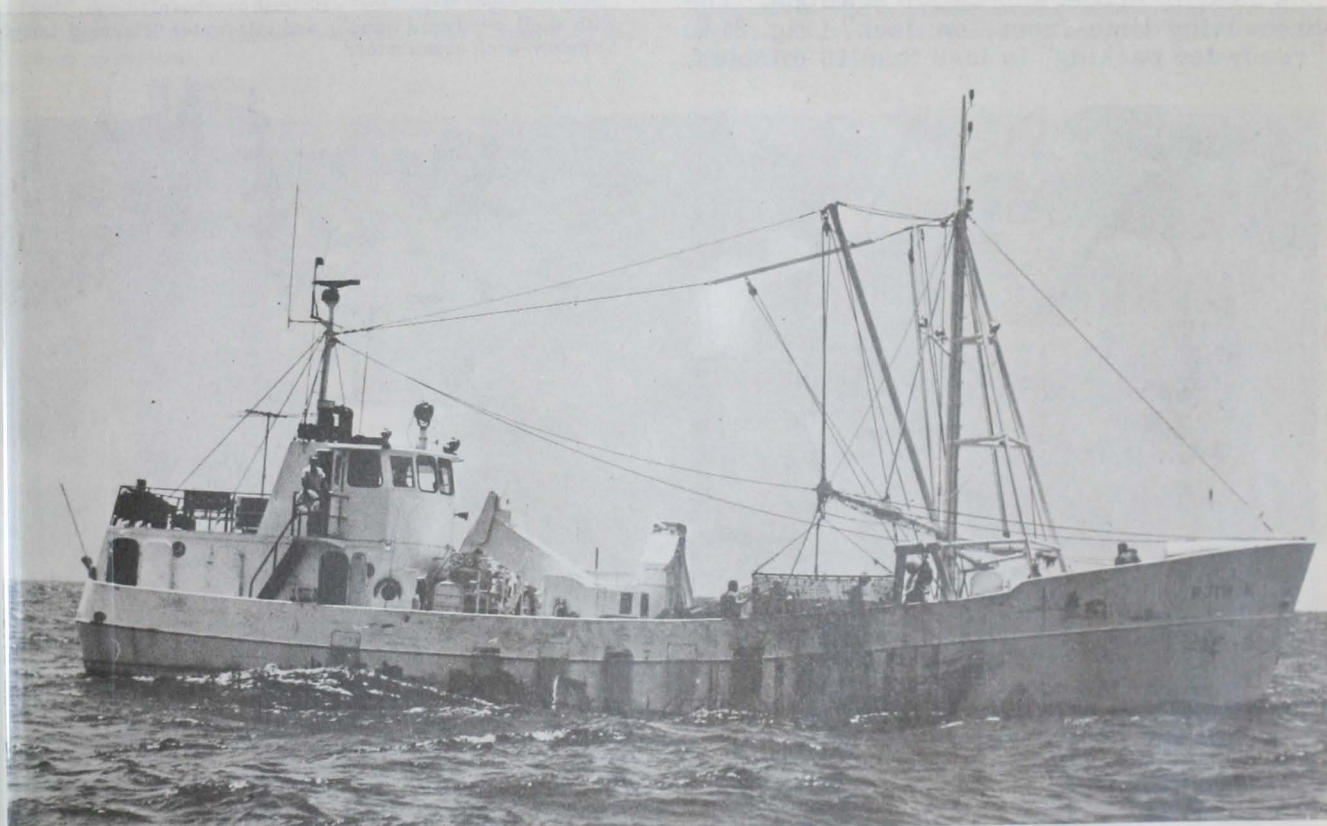


Fig. 2 - Factory scalloper Ruth M., 86-foot steel hull, fully automated to process calico scallops at sea, operating on Cape Kennedy grounds.

Mr. Cummins is Chief, BCF South Atlantic Fisheries Explorations, Brunswick, Ga. 31520.

Mr. Rivers is Fishery Methods and Equipment Specialist, Brunswick, Ga. 31520.

Contribution No. 182 Exploratory Fishing and Gear Research Base, Pascagoula, Miss. 39567.

U. S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Reprint (Sep.) No. 867

By September 1969, production rates had gradually increased to a maximum of about 4,000 pounds of processed scallop meats per 24 hours of fishing. Increased production at that time was limited by the processing equipment rather than the catch rate. During the period, wholesale prices for scallop meats averaged \$1.50 per pound. The vessels are "ice" boats that land the processed scallop meats in 10-pound containers packed in ice; about 12,000 pounds are their maximum holding capacity. When landed, the meats are frozen in liquid nitrogen or sold as "fresh."

Under 10-Minute Processing

Although equipment modifications continue to be made, the accompanying photographs by Joaquim B. Rivers show the equipment now used for processing calico scallops. The processing time from "on deck" (Fig. 3) to "ready for packing" is less than 10 minutes.



Fig. 3 - A 10-foot "tumbler dredge" with about 1,400 pounds of calico scallops coming aboard after 15-minute drag.

Five sequential processing steps are shown: 1) sorting the catch (Figs. 4, 5, 6, and 7); 2) shucking (Figs. 8 and 9); 3) cleaning (Figs. 10 and 11); 4) eviscerating (Figs. 12, 13, and 14); and 5) chilling/packing (Figs. 15 and 16).



Fig. 4 - Overall view of main deck processing equipment. Includes conveyor "separator" with trash overboard trough, "shucker" with shell overboard trough, and salt-water "cleaning trough" to below-deck eviscerator.



Fig. 5 - Feeding the bucket conveyor leading to "separator."



Fig. 6 - Inside view of rotating screw-type squirrel cage "separator."

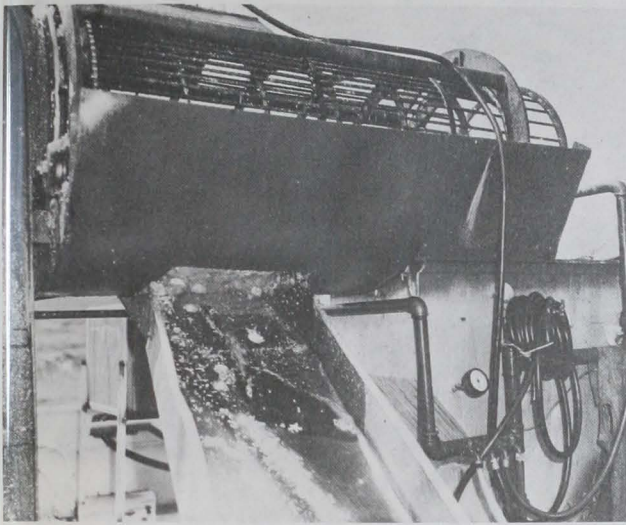


Fig. 7 - Side view of "separator" with trough where dead shell and debris go overboard.

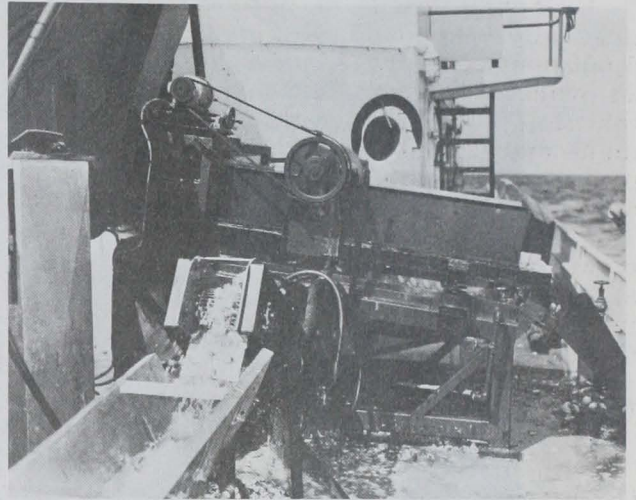


Fig. 8 - Shaker screen or exit portion of "shucker" where shucked meats and shells are separated. Shown are overboard trough for shells, and salt-water cleaning trough for shucked meats with viscera attached.



Fig. 9 - Vibrating shaker screen separating shells from shucked scallop meats. The meats drop through perforations in the screen.

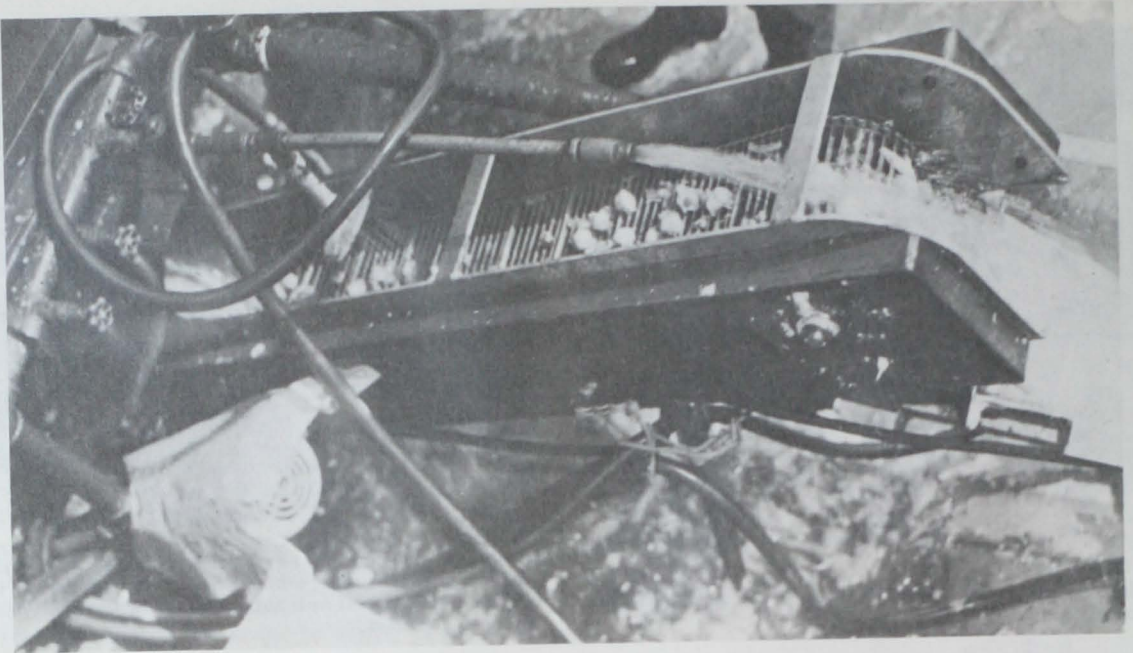


Fig. 10 - "Hamburger machine," a washer conveyor for shucked meats between shaker screen and salt-water floatation cleaning trough.

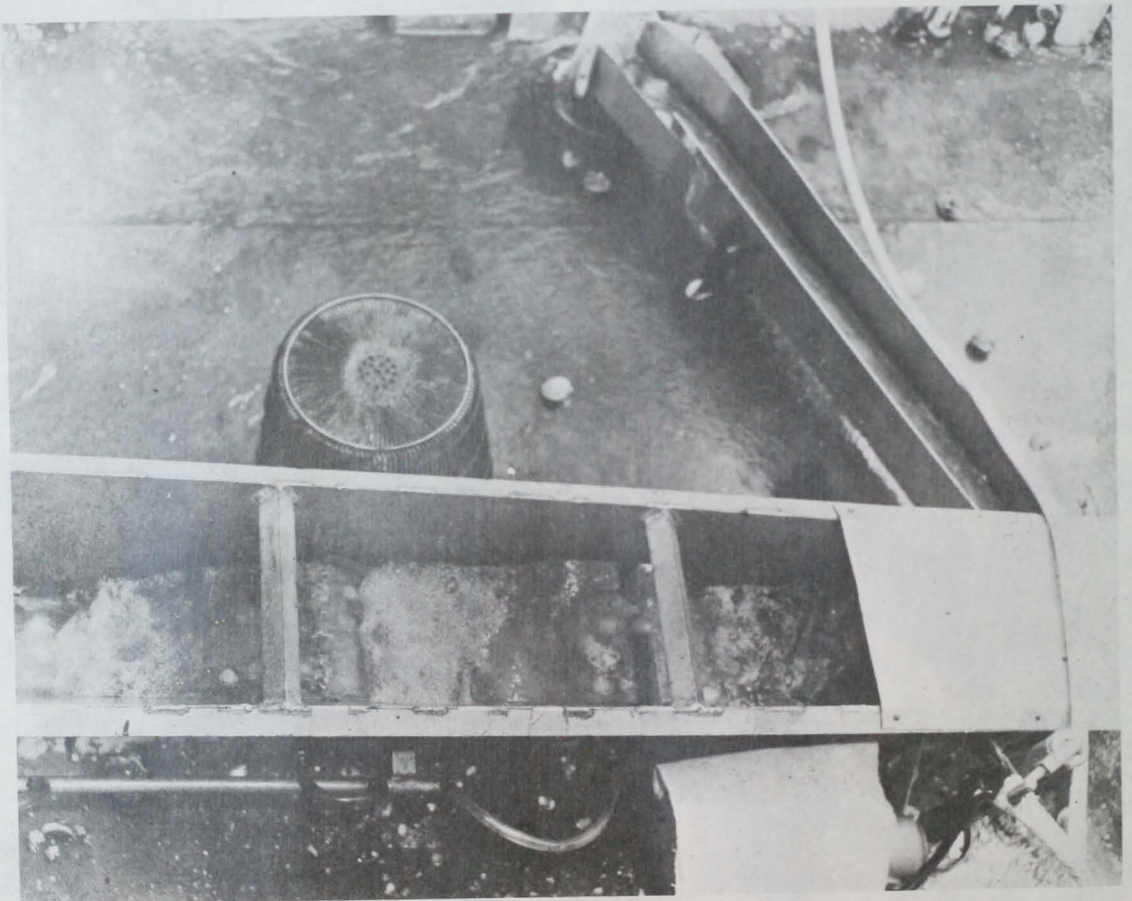


Fig. 11 - Salt-water floatation cleaning trough and conveyor trough leading to below-deck eviscerator.

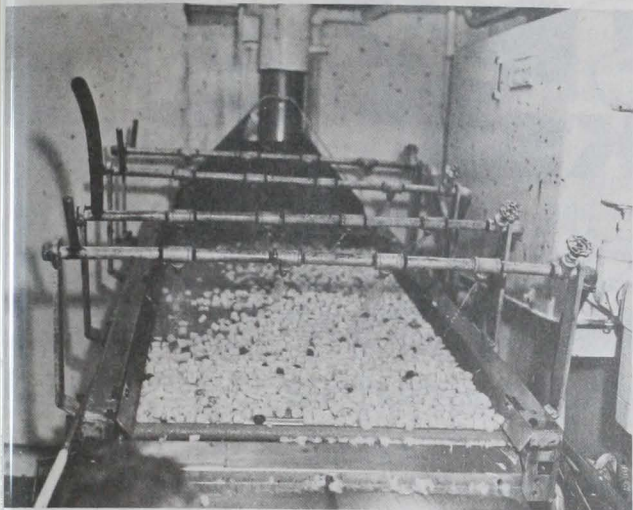


Fig. 12 - Rotating roller-type "eviscerator," below deck, separates viscera from edible adductor muscle.

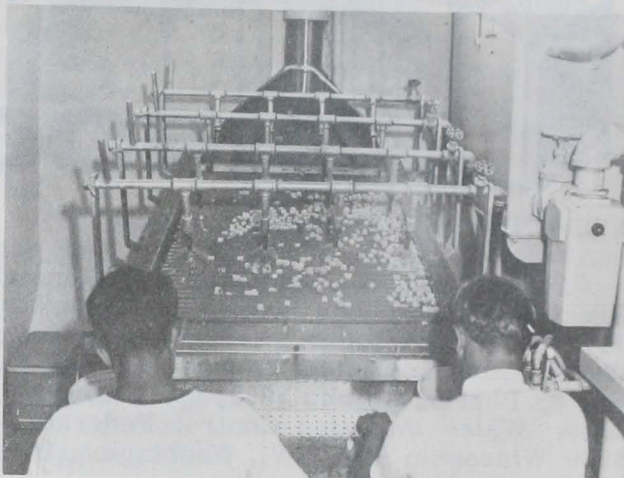


Fig. 13 - Inspecting eviscerated scallop meats coming off "eviscerator" prior to brine chilling.

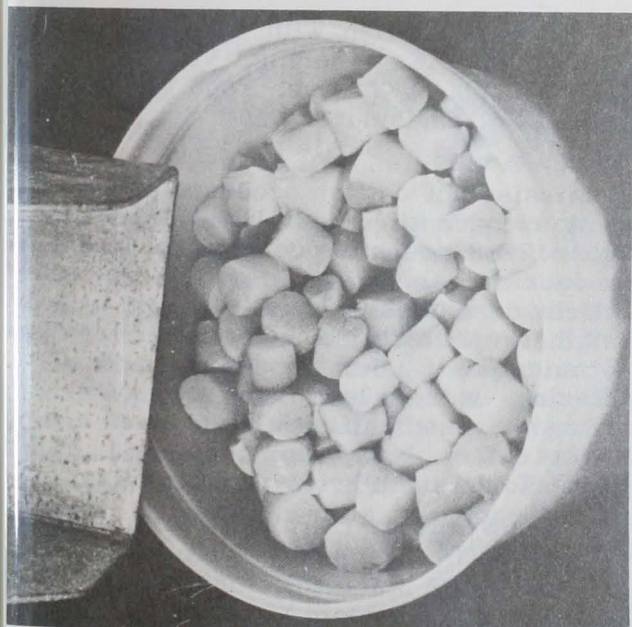


Fig. 14 - Freshly eviscerated calico scallop meats.

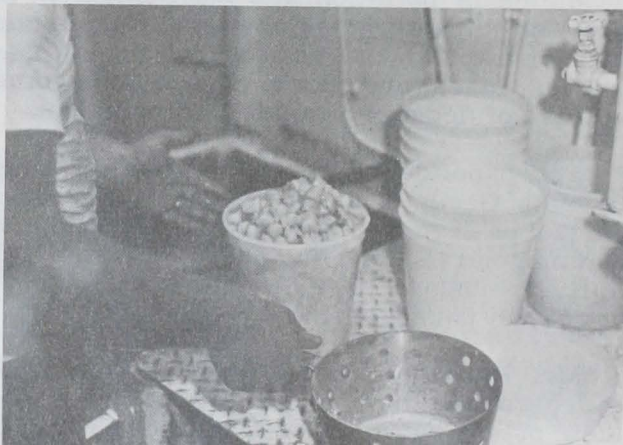


Fig. 15 - Packing brine-chilled scallop meats in 10-pound plastic buckets.



Fig. 16 - Ten-pound buckets of processed scallop meats packed in ice.