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Crabs are abundant in Bay this year

Sewell Hopkins

Virginia Fisheries Laboratory

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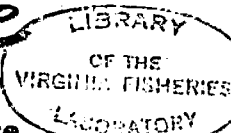
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CRABS ARE ABUNDANT IN BAY THIS YEAR

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Crab catch records are being collected now from the winter dredge fishery by the Virginia Fisheries Laboratory. The crab dredge boats are finding crabs more abundant than for many years. The dredging season opened November 29 and will last until March 31. During the first month, crab dredgers averaged about 25 barrels per trip, with some boats making occasional catches of 70 or 80 barrels.

This season, for the first time, the Virginia Fisheries Laboratory supplied each of the 70 dredge boat captains with forms on which to keep records of each day's catch. Each captain was asked to send in his record of the first month's catch early this month. Some of these reports are slow in coming in, but those so far received indicate an average catch of 25 barrels for each day of dredging. Captains were also asked to report the location where each day's catch was made, and some are doing an excellent job of this.

The Virginia Fisheries Laboratory has the complete records of a few dredge boats extending back as far as 1934. Over this 12 year period the average catch for December was 12½ barrels per boat per trip, or just half of the average for December this season. However, in 1942 the average for December was 22 barrels. The next year, 1943, was the poorest in the whole period; the average catch in December was only 4 barrels per trip.

The January average catch during the past 12 years has been little more than half of the December average -- in fact, the average daily catches for the other three months of the season are not much more than half of the December average -- and the few reports of January catches so far seem to indicate that this season is running true to form.

"Too many crabs" is the complaint of the crabbers this winter. Because of the extreme shortage of labor for picking crab meat, crab packing houses were unable to use the much larger supply of crabs, and some dredge boats averaged

only two trips a week in December because it took two or three days to get rid of one day's catch. During December buyers paid \$5 to \$6 per barrel, with a daily limit of 20 or 25 barrels per boat. However, as the supply falls off the price should go higher later in the season.

"Where did all the crabs come from?" is a question often discussed this winter, some crabbers believe that the crabs caught by dredgers in winter are the ones which spawned the previous summer. As there was no unusual abundance of sponge crabs last summer, these crabbers were surprised to find such large numbers of winter crabs. This interesting and important question of where and at what place the young of the winter dredge fishery crabs originate has been studied at Yorktown. The Laboratory has regularly examined samples of the catches of crabbers for the past three years. The ratio of females to males, the degree of maturity of the female crabs, their various stages of sexual development together with their size characteristics as well as the presence or absence of egg shell cases attached to abdominal appendages on the under side of the "apron" (abdomen) provide the necessary data for making it possible to answer this and related questions.

In 1943-1944, about 30% of all the dredge crabs examined in the lower Chesapeake Bay were mature females, but only 6% of all the females had ever spawned. This was determined by examining the feather-like "swimmerets" under the "apron" or tail of the crab with a high-powered microscope. Crabs which have spawned the previous season always have some empty egg-shells or egg stalks still attached to the fine hairs which give the feather-like appearance to these parts. Even smaller percentages of old spawned females were found in 1944-1945 and in 1945-1946. Furthermore, catch records show no tendency for summers of abundant sponge crabs to be followed by large catches in winter. It seems certain that the winter crabs in the Bay, except for a very few, have never been sponge crabs and did not come from the spawning grounds in the lower bay.

Nearly all of the crabs caught by dredges in winter are clean new crabs, mostly of the type called "blue socks" by the crabbers. Catch records obtained by the Virginia Fisheries Laboratory show that years when soft crabs are abundant in the rivers and upper Bay during the summer, and when trotliners or crab potters make unusually large catches in the fall, are generally good years for the dredgers in the winter. The most abundant crabs in the big fall catches are the same new mature females or "blue socks" which make up most of the dredge catches. It seems most probable, therefore, that most of the millions of crabs now concentrated in the deeper parts of lower Chesapeake Bay come from the rivers and creeks and from the upper part of the Bay. The "Blue socks" are new mature females which shed for the last time, and mated, during the late summer or fall and then migrated to the deep waters of the lower Bay to spend the winter. Some crabs may also come into the lower Bay from the ocean, but these probably make up only a small part of the total number of winter crabs in the Bay.

The mature females which winter in the lower Bay are the ones which lay eggs and become sponge crabs in late spring or early summer. It is not certain whether most of the sponge crabs found in late summer are the same crabs spawning again or whether they are later arrivals from the rivers and upper Bay waters. At any rate, catch records show that winters when the dredgers make large catches tend to be followed by summers of sponge crab abundance.

What happens to the sponge crabs after the spawning season is still an unsolved problem, so far as the biologists are concerned. The crabbers who have better opportunities for observation than the biologists have several theories. Some believe that nearly all crabs die after spawning, and this is supported by the fact that many old females are found dead on the beaches between Ocean View and Cape Henry in late summer. Others believe that the old females move out into the ocean or the Bay channel near the ocean after the spawning season, and this

is supported by the fact that schools of old, nearly dead female crabs have been found by dredgers in this region some winters. At any rate, most of the sponge crabs, which make up 90 to 98% of all crabs caught in the Bay between Hampton Roads and Cape Henry during the summer, seem to disappear as soon as their eggs are hatched, and during the fall the lower Bay fills up with a new crop of mature females. This year the dredgers are harvesting an unusually large crop of the same generation of crabs which accounted for the very large catches of soft crabs in Virginia rivers and the upper Bay last summer. Trawlers have reported that many of these new crabs passed on out through the Capes and caused trouble by filling up trawl nets well out in the ocean. However, most of the crabs will probably remain in the Bay through the winter and may be expected to produce an abundance of spawners next summer.

This work is being carried out by Dr. E. H. Hopkins, Associate Biologist of the Laboratory.