UNITED STATES
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PLUM ISLAND CLAM FLATS STUDIED

Several possible causes of the present scarcity of clams along the north shore of Massachusetts were discovered by Dr. Paul S. Galtsoff, shellfish biologist of the United States Fish and Wildlife Service, during a survey of the clam flats of the Parker River National Wildlife Refuge at Newburyport last week. The survey was made to obtain information on clam abundance before the fall waterfowl flights arrive.

Dr. Galtsoff's examination of the Plum Island clam flats revealed the presence of a large number of marine snails, called sand collars or drills, which destroy clams by boring holes in the shells and eating out the meat. These snails are potentially a serious menace to the clams and the amount of damage they do should be accurately determined by a thorough study, Dr. Galtsoff said.

Other evidence found by the biologist indicates that numbers of clams may be destroyed by the horseshoe crab, known scientifically as Limulus.

"Diggers interviewed on the flats, as well as the operators of shucking houses, were unanimous in accusing Limulus as the number one enemy of the clam," Dr. Galtsoff said. "Hordes of Limulus invade the clam flats in June and July to deposit their eggs in the sand. At the present time of year, however, the adults have gone to sea again and there is no way of determining now how many clams they destroyed during the summer invasion. Such a study should be made next summer. However, numerous cast shells of the young which I saw in the marshes bordering the flats is evidence that they are an abundant potential enemy of the clam."

On some of the Plum Island flats Dr. Galtsoff found indications of heavy mortality among one-year-old clams. A sample count on these flats revealed about 4 times as many dead clams as live ones. The dead clams ranged in size from 1 to $1\frac{1}{2}$ inches.

"Obviously these clams had not been eaten by any natural enemy," Dr. Galtsoff commented, "but died from some cause not immediately apparent. A careful study is needed to determine how extensive this mortality of young clams is and what caused it. It seems significant that these same flats contained no seed clams -- the young that should have been produced this year."

In other localities in the area sampled, seed clams were scarce, nowhere being more abundant than 10 per square foot. Clams belonging to non-commercial species were about three times as numerous in the samples as the soft shelled clams.

"Judging by information received from professional diggers, clam commissioners, and operators of shucking houses, there is no doubt that the population of clams is materially reduced," Dr. Galtsoff said. "Fewer clams can be dug on a tide now than was true several years ago. Since the operators of shucking houses report that about two-thirds of the clams shucked in this area are now imported from Maine, it is clear that the demand is much greater than the local supply."

As a result of his preliminary survey, Dr. Galtsoff is preparing recommendations for a detailed study which the Fish and Wildlife Service might conduct. Such a study would be directed to reveal the relative importance of the different factors which are adversely affecting the clams, and indicate how this valuable resource might be restored, according to Dr. Galtsoff.