

Fisheries Institute

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lication by writing to the U. S. Fish and Wildlife Service, Department of the Interior, Washington, D. C., and asking for a copy of "Releasing Small Fish and Shrimp from Trawl Nets" by Eugene Roelofs (Sep. No. 257). The Institute has about a hundred copies of this article and will be happy to distribute them.

Survey of Fishing Banks

One of the most far-reaching programs which has been initiated by this Institute is a topographical survey of the fishing banks. The bottom off the North Carolina coast, while in part smooth and trawlable, also has innumerable hazards to trawling. Very little is known about the conditions on this bank except that knowledge which has been developed by the fishermen themselves. The result is that there is an annual loss of gear which is not only expensive to the boat owner but retards the commercial exploration and development of the fishing banks.

Recognizing the dearth of information on the fishing banks and the terrific toll taken annually in fishing gear, the Legislature in 1947 appropriated a sum of money and authorized a survey. The purposes of this survey were twofold: the legislative act specifically designated that a search should be made for the habitat of the out-of-season shrimp and that the fishing banks explored should be properly charted in such a manner that the fishermen could avoid a great many of the hazards to their gear. The Institute of Fisheries Research was charged with the responsibilities of organizing and conducting the survey.

Beneficial Results

Highly beneficial results have come from this program of the Institute. In a public meeting last week a leading shrimp operator of Southport made the statement that at least 50 percent of the Southport shrimp catch this season had been taken from an area formerly avoided by the fishermen but now opened by the survey.

While we feel that this estimate was too generous, we know it to be an established fact that areas in Onslow Bay and west of Frying Pan Shoals have been the scene of successful operations where formerly considerable gear was destroyed or areas were totally avoided because of bottom hazards.

While the shrimp survey itself is limited mostly to waters within the 20-fathom curve, the results obtained in this investigation indicated the soundness and desirability of extending the survey into the deeper waters of the coast. These waters beyond the 20-fathom curve west of Cape Lookout are practically unknown except to a few fishermen. The im-

pression was that the area abounded in coral reefs, ravines and other hazards to trawling.

The Institute of Fisheries Research, in cooperation with the U. S. Fish and Wildlife Service, made a preliminary survey of the bottom of these deeper waters in the summer of 1949 with the research vessel Albatross III. The results, although inconclusive, were so promising that it was decided to obtain the ship for a more protracted operation.

Accordingly, the Institute of Fisheries Research and the Department of Conservation enlisted the aid of Senator Graham who introduced a bill in Congress for the appropriation of \$20,000 to be spent in the exploration of the fishing banks off our coast. The Albatross III returned last January and remained for approximately three months, making extensive tows in the deeper waters.

These tows show that there is a substantial amount of unsuspected trawlable bottom beyond the 20-fathom line. The operations of the Albatross III point definitely to the practicability and the worthwhileness of a continued exploration of these fishing grounds.

The appropriation which allowed the Albatross III to come to North Carolina waters is a continuing one, the money to be spent in exploratory fishing south of Norfolk. Negotiations are now underway to have the money spent at least one more year in North Carolina.

Shellfish

In the summer of 1948 when the Institute first initiated its study of shellfish in the State of North Carolina, there were few recorded data on this subject and no compilation or publications to serve as a reference for one seeking knowledge on the subject. Scattered publications disclosed the work of various investigators which extended over a period of some fifty years, but there had been little attempt made to study the situation as a whole and correlate the data. Local areas had from time to time been under observation, but the extent of the investigations was small and the method of of attack irregular. There was no sustained effort on the part of anyone to carry through an intensive investigational study.

Oysters Studied

Recognizing the importance of the oyster industry to the coastal counties, the Institute undertook the study of oysters as one of its first projects. To begin with, the Institute established regular stations in Pamlico and Core Sounds and in one or two of the tributaries of these sounds to obtain hydrographic and planktonic data.

The principal attention has been given to determining those loca-

tions and time of peak settings and the effect of hydrological conditions on those settings. It had been commonly assumed that the peak settings came in late spring or early summer.

The question naturally arose as to whether this was true or whether the conditions of the fall of the year were more favorable or, if the setting was continuous over a long period of time. Definitive data have not yet been obtained to enable the Institute to say with certainty just when the peak settings do occur, although there are indications that the period runs continuously from late spring well into the fall and winter with intermittent peaks throughout the course.

It is quite possible that under more normal weather conditions the animals would not spawn over such a long period as they have been observed to do during the past two years.

Areas Defined

Concomitantly with the investigations on spawning and setting, the Institute has studied the areas in the sound which encourage the most rapid growth and fattening of oysters. For the first time in this State we are able to define some of the areas which permit of good setting and some which do not. We are further able to indicate those areas where growth and fattening are favored and those areas where they are not.

This fall a detailed report of the two-year survey will be completed. This timing will enable the Institute to compare the results of the first twelve-month period in appraising the significance of checking of the observation of the second year. It will give us the opportunity of checking the growth of oysters nearing three years of age which set on the oyster shell plantings of the spring of 1947.

This report will carry charts showing the location of most of the known oyster beds of Pamlico Sound and will indicate the years when oyster shells were planted on those beds. It will give some detailed observations on the seeding conditions, the quality of the oyster and the rate of growth, as well as the appearance of natural enemies and infestations. The report may well serve as a handbook for those interested in the shellfish culture in this State and

Let There Be Light!

Two fishermen sitting in the sun on the waterfront were swapping stories of their experiences.

One had just finished telling of a fight he had landed a whopper of a fish and the other said, "Well, I'll tell you what happened to me one day. I threw my line overboard and it snagged on the wreck of an old Confederate gunboat. I pulled it in and there on the end of it was a lantern, covered with weeds and shells, but it was still burning."

The other fisherman thought a while, and then he said, "I don't believe that, but I'll tell you what I'll do, I'll cut about a foot off my fish, if you'll blow out your lantern."

to the scientists and investigators who are working on shellfish problems in other states.

It will most certainly make a valuable contribution to the accumulated economic and scientific knowledge of marine resources.

Shrimp

Paralleling the investigations and forming a very important part of them has been the work done on the shrimp population of the sounds. Here we have found many discrepancies between true facts and the popular conception of the sound shrimp population.

The sound shrimp population of North Carolina, at least for the past two years, contrary to popular supposition, consists almost entirely of brown shrimp, the two species of which are the common brown shrimp (*Penaeus aztecus*) and the spotted shrimp (*Penaeus duorarum*). This situation is in sharp contrast with that found in most of the southern states and points to a condition in our sounds more closely approximating the species make-up of the Florida Keys fishery. The green shrimp (*Penaeus setiferus*) does not appear in Pamlico or Core Sounds in large quantities while it constitutes the bulk of the catch off Southport.

There is a sharp distinction in characteristic between the Southport shrimp and the sound shrimp, and at least for the two years of the Institute's observations it can be definitely stated that Pamlico Sound and the northern sounds do not serve as a nursery grounds for the shrimp which ap-

pears at Southport.

A very important aspect of the difference in population of the sound shrimp of North Carolina and states south of us indicate that regulations in our sounds should in no way be guided by regulations which might be suitable to other southern states. There has been agitation for several years for a uniform regulation of the shrimp fishery of the South Atlantic. The information developed here indicates that there cannot be a uniform regulation for the simple reason that we are dealing with different populations whose characteristics differ accordingly.

The spotted shrimp population is almost entirely limited so far as the commercial catch is concerned to the Core Sound and Cape Lookout area. Although some spotted shrimp are found in Pamlico Sound, the bulk apparently remains in Core Sound and its tributaries.

The spotted shrimp are different in habit from the common brown shrimp, and a survey which this Institute has made begins to throw some doubt on the wisdom of the general regulations now in effect.

Concomitantly with the examination of the sound population, investigations on the off shore winter population of shrimp have been undertaken. There is a resident population of shrimp in the off-shore waters too scattered to constitute a commercial fishery. A rather important and significant finding, however, is that the spotted shrimp predominates, while in the sounds proper during the fishing season the common brown shrimp predominates.

The Florida Keys fishery consists entirely of the spotted shrimp, and it may be that the individuals found off our coast in the winter may be strays from a dense population that some day may be discovered within easy sailing distance from North Carolina ports. Only further offshore investigations can give conclusive evidence to confirm or contradict this theory.

(Editor's Note: We take this opportunity to extend to Mr. Ellison and his staff, Dr. A. F. Chestnut, Dr. Eugene W. Roelofs and Carter Broad, our thanks for their cooperation in contributing information and articles for this edition).

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