

after extended dry periods, up to 44 parts per thousand have been recorded. Also, after very unusual heavy rains during the fall of 1949 when the flow of fresh water from a nearby fresh water lagoon was abundant, a salinity average of 16.8 parts per thousand was observed. However, nine days later the salinity was up to 28.9 parts per thousand, and up to 34.4 parts per thousand the following week.

The water temperature here is uniformly high. The extremes observed were from 25.0° to 31.0°C. Oxygen content of the water varied, inversely with the temperature, from 7.0 per cent to 3.7 per cent. The pH of the water varied from 7.4 to 8.2 (Figure 1.).

Studies on the rate of growth of adults and spat were made. Individuals attached to mangrove roots and to artificially furnished cultch were studied. The mature individuals grow at a rate of 0.12 mm. per day, and spat grow 0.25 mm. per day.

This species is dioecious with an observed sex ratio of approximately 5 females to 4 males. They are sexually active throughout the entire year; setting of spats has been observed during all seasons.

Reference is made to a detailed study by the present writer, "Studies on the biology of the edible oyster, *Ostrea rhizophorae* Guilding, in Puerto Rico." Ecol. Monog. 19:339-356, 1949.

Potentialities Of The Gulf Oyster Industry

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THOSE FAMILIAR with conditions in the Gulf states oyster industry will admit that there is room for a vast increase in production. It is not necessary to look further for one of the prime causes of this condition than to note the small percentage of grounds under lease. A recent survey made by the author revealed that there were only 25,000 acres under lease, as compared with an estimated 916,000 acres of natural oyster grounds not under lease. In other words, less than three per cent of the total acreage is being cultivated. It is only necessary to recall that of the oyster production in Massachusetts, Rhode Island, Connecticut, New York and New Jersey, about 98 per cent of the annual harvest comes from cultivated grounds, to appreciate the value of oyster cultivation in maintaining the industry at high productive levels. From the experiences in Maryland and other states it must be concluded also that the amount of money required to maintain production on public grounds is far too great to be achieved by subsidies or direct taxes. If these statements be admitted as facts, then the solution to the problem of creating a flourishing oyster industry is through the enlistment of private capital in the leasing and cultivation of oyster bottoms. If this be true, then state governmental agencies should take necessary steps to encourage the leasing of grounds for private cultivation on a sufficiently large scale, and without encumbering provisions, to make it really worth while for private capital to enter this field. Furthermore, as a result of the extensive researches sponsored by the oil interests, state and federal laboratories engaged in studies of the problems of the oyster industry, there is being accumulated a tremendous backlog of valuable information, far greater than any other area within the realm of oyster production. When this can be released to the public it should prove to be of inestimable value in the development of increased production of oysters.

Now that there is a Gulf States Marine Fisheries Commission it is hoped that the Commission will make one of its major objectives the fostering and development of the oyster industry of the Gulf. There is no objective with greater promise of increasing the productive wealth of the Gulf coastlines. If it has not already established a section devoted to the problems of the oyster industry, to furthering its development, it is to be hoped that this may become an established fact shortly. The Atlantic States Marine Fisheries Commission has already demonstrated great capabilities in coordinating the efforts and furthering developments in other comparable fields.

The future development of the oyster industry is not so much dependent on an increase of our scientific knowledge of what to do as it is upon political consideration and practical application of knowledge now available.

Latent Oyster Resources Of Florida

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ACCORDING TO THE STATISTICAL DATA for 1945, Florida contributes annually to the national supply of sea food only 1.6 million pounds of oyster meat, or less than 2 per cent of the average annual production of oysters in the United States. About 93 per cent of this quantity are produced by public oyster grounds and only 7 per cent are harvested from privately leased bottoms. The west coast of Florida contributes the greatest part, namely about 1.5 million pounds and is therefore much more significant than the east coast, which produces only 0.7 million pounds.

In relation to the very long coastal line of the State the total harvest of oysters is very small. Furthermore, the yield of oyster meat is very low. One standard bushel of Florida oysters averages only 3 pounds of meat as compared with 7 or 8 pounds obtainable from a bushel of oysters in Long Island Sound and in Delaware Bay. The low figure of yield is an index of a poor quality of oyster meats, which is typical for the wild oysters usually found on public grounds.

Fifty or more years ago the Florida coast abounded in oysters, the quality of which, especially of those from Apalachicola Bay and adjacent waters, compared favorably with the best oysters produced in the country. Thus, the present situation cannot be entirely attributed to unfavorable natural conditions. It is reasonable to conclude that the decline in the productivity of bottoms and poor yield of oyster meat are the results of the lack of management of public oyster grounds and of the inability of private oyster growers to engage in the cultivation or oyster farming in State waters.

According to the detailed survey made in 1897 by Lt. F. Swift, U.S.N., there were 12,214 acres of grounds suitable for oyster culture in St. Vincent Sound, Apalachicola and St. George Sound. Although since that time some of these grounds have been destroyed, recent observations indicate that about 7000 acres of bottom may still be suitable for oyster culture. If properly attended, this area alone should produce annually 700,000 bushels of oysters, or at least 2,100,000 pounds of oyster meat. There are other areas, namely near Cedar Keys, in Tampa Bay, in Ft. Myers region, near Fernandina and in Indian River which may be developed as productive oyster bottoms.

Among the obstacles impeding the development of oyster industry in Florida, the most serious ones are an inadequate supply of shells for cultch and of seed