

A Preliminary Report on Some Experiments in the Production and Transplanting of South Carolina Seed Oysters to Certain Waters of the Chesapeake Area

PART 1: Production of Oyster Seed

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In 1948 Mr. G. Francis Beaven of the Chesapeake Biological Laboratory transplanted a small sample of South Carolina oysters to Maryland. He made careful studies on the survival and growth of these oysters. Generally speaking, the results were fairly satisfactory, but viewed in its entirety, the experiment could not be called successful enough to attempt a commercial venture. However, this earlier transplanting by Beaven made use of mature oysters. It seemed possible to us that at this age these oysters were "sot in their ways" and could not stand moving. Therefore, in 1950 some month-old oysters were moved from Bears Bluff to Maryland. These oysters survived and thrived sufficiently well to encourage us to continue our experiment. Since then several truck loads of seed oysters have been shipped from Bears Bluff to Maryland for experimental purposes. Plantings have been made in numerous locations throughout the Chesapeake Bay region. Mr. Beaven will report on the results of these transplantings from studies made by him, by Fred Sieling, Joe Manning, and Dr. Jay Andrews.

The purpose of my part in this discussion is to show at what cost we in South Carolina can secure seed oysters for shipment.

Without the long-winded supporting data and experiments to prove the point, please accept the statement that it seems more economical and better for all around purposes to use shell cultch in wire baskets. These baskets are made from poultry netting and hold about a half bushel of shell. By using a large knife-like cutter similar to a photographer's trimming board, and by stapling the edges of the wire together with a P-7 Bostitch stapler, these baskets can be manufactured for 18.2 cents apiece.

South Carolina waters are so heavily laden with oyster larvae, and setting is so uniformly good from May through September, that it is not necessary to expose these cultch bags on existing oyster beds. It has proven quite practical to suspend these baskets from steel cables hung along the edge of a small creek by the Laboratories over soft unproductive muddy bottoms. The cables are stretched between piling in such a way that the cultch bags hang at an elevation of from plus one to plus two feet. This elevation is exceptionally good for securing relatively heavy set of young oysters.

By making use of cables suspended over soft muddy bottoms, any criticism of utilizing existing, productive, oyster beds and diverting them to this proposed seed oyster business is eliminated. Surprisingly enough, such criticism has come from commercial oystermen, conservationists, and extremely provincial individuals.

The entire operation of making the baskets, filling them with shell, suspending the bags on the cable, collecting the seed and delivering the seed oyster bags on the dock, was done at a cost of roughly from twenty-one to twenty-two cents a bag. Seed oysters can be produced thus from the latter part of May until well into September. Within two months after exposure,

spat usually will be thumb-nail size, and normally, after four months, they are about the size of a half dollar.

These bags can be readily transported to the Chesapeake Bay area. They make handling of seed oysters easy because the entire bag can be loaded aboard the boat for planting. Once on the planting grounds, the staple rings can be cut loose with a wirecutting pliers and the cultch, with seed, dumped from the boat on the planting grounds. Mr. Beaven will doubtless outline to you some of the results of the transplantings, but, from correspondence with him, it is my understanding that we have found that this seed could remain exposed as long as six days from the time they were landed on our docks until the time they were planted in the Chesapeake area. Doubtless this time would vary somewhat according to temperatures.

If these seed oysters grow successfully in northern waters, South Carolina could readily supply a large part of the demand. Investigation shows that over and above the legal amount required for replanting, roughly 300,000 standard bushels of shell are available for cultch annually.

One of the important questions is, however, would it be a profitable venture? At present South Carolina places a tax of ten cents a bushel, or *fraction thereof*, on all oysters in the shell shipped within or out of the State. Since the experimental shell bags are approximately a half bushel, each bag would have a ten cents tax placed on it. Transportation costs are another drawback. Ordinary common carrier transportation rates would run about \$3.50 a hundred from Bears Bluff Laboratories in South Carolina to the Chesapeake Biological Laboratory at Solomons, Maryland. Since these half-bushel wire baskets weigh approximately fifteen pounds, the cost of transportation would be about fifty-three cents per bag. Thus, until something can be done to lower the transportation cost, it is quite obvious that it would not be economically feasible to ship seed oysters from South Carolina to the Chesapeake Bay area. However, it seems likely that a cheaper means of transportation can be found. Water transportation has not yet been investigated. Another reduction in the cost of production of seed oyster baskets could be in the reduction of taxes. It is not illogical to assume that the General Assembly could be persuaded that it would be to the State's advantage to Collect some tax at a lower rate than little or no tax at a high rate. To still further reduce the cost it has been found practical to use the cultch bags twice. Some would be lost, but a large percentage could be returned by the oysterman.

To summarise in tabular form the cost of production of the seed oysters in South Carolina, consider this table:

Cost of Bag	7.7 cents
Labor, manufacture of bag	6.0
Cost of shell	1.5
Labor for filling bag	3.0
Labor, handling to and from cables	2.8
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Cost per bag	21.0 cents
Tax	10.0
Freight	53.0
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Total cost per bag	84.0 cents

Since it is understood that the demand for seed oysters in the Chesapeake Bay area and in other northern waters is almost unlimited, and since South-Carolina has available 300,000 bushels of shell yearly, it is theoretically possible to ship over 500,000 seed bags from South Carolina each year. A bag of seed oysters of the size used in these experiments will sell for about fifty cents. In a large scale venture the cost of shell bags could be reduced somewhat. Taxes can certainly be reduced. Lower costs can be had in re-use of the wire baskets. If transportation can be had reasonably enough, a new phase of the oyster industry may be possible in South Carolina provided the South Carolina seed grow and survive sufficiently to satisfy the demands of oystermen in the Chesapeake Bay area. Mr. Beaven has been working on this phase of our problem and he will now discuss with you the survival and growth of South Carolina seed in northern waters.

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PART 2: The seed problem in Maryland and some observations on the survival and growth of South Carolina spat when transplanted experimentally to different type areas in the Maryland-Virginia region.

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One of the greatest problems of oyster production in the Maryland area, as in many states further north, is that of securing a sufficient supply of seed oysters. Natural setting over many bars in this region usually is too light to replace the market oysters harvested by conventional methods. This lack of spat favors the growth of well shaped, fat single oysters but makes it necessary that either the rate of harvesting be greatly restricted or that the bars be reseeded periodically in order to maintain their production. Where such conditions prevail private planters have found that the greatest profits can be realized through harvesting by the most efficient means possible and then reseeding the bottom for each succeeding crop. An essential factor in the success of such a system, however, is the ability to obtain an ample and dependable source of seed oysters. This has become increasingly difficult in recent years. A similar problem is faced by the State in its management of the publicly worked natural rocks.

Extensive supplies of small or seed oysters once were found on the natural beds in the upper part of Chesapeake Bay and in the upper Potomac River. These have been destroyed almost completely by recurring freshets during recent years. Even if oysters again become reestablished on these upstream beds the supply there still would remain undependable. The famed James River seed beds in Virginia long have been a major source of seed for Maryland planters. For the past few years, however, the sale of seed from these beds has been banned periodically to out-of-state buyers. Pamlico Sound once also was an important source of seed planted in Maryland but the supply became badly depleted and the sale of seed was restricted a number of years ago. Present