A Concrete Solution for Oyster Recruitment and Growth: Designing an Artificial Structure to Increase Oyster Shell Growth and Oyster Spat Settlement Using Calcite Media

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This research was to design an artificial structure to house a calcite media that dissolves over an extended period of time and would have significant effects on (1) increasing the average oyster growth rate, (2) increasing the overall number of oyster spats, and (3) improving both calcium and carbonate levels in the water surrounding the artificial structures compared to the control groups. It was hypothesized that a significant effect on the improvement of calcium and carbonate levels, oyster growth, and number of spat settlement would occur. Experiments were performed at three locations in the Indian River Lagoon. Located at each site were three oyster cages, two containing artificial structures and calcite media and one control cage containing an artificial structure without calcite media. Inside each cage were five oysters and five dried oyster shells. Every seven days for fourteen weeks, measurements were recorded of the total length of the oysters per cage and the total number of oyster spat on the dried shells and artificial structures. The researcher concluded that oyster shell growth rate differed between the test sites. Overall, oysters had a higher growth rate and higher number of spats on the artificial structures containing calcite media. The results show that oyster growth can be increased through the use of artificial structures and calcite media. In future experiments, we can test if beginning deployment of artificial structures with calcite media earlier in the spring when temperatures are higher may increase growth rates and the number of oyster spats formed.

Awards Won:

Third Award of $1,000