Effect of Aggregate Size on Oyster Spat Recruitment

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Oyster populations around the world are down nearly 90 percent. Much of this loss has happened in the last 40 years. In Florida Oysters Crassostrea virginica are a keystone species, and their loss endangers the collapse of whole marine ecosystems. This project intended to add further evidence to support research on alternative materials, such as concrete and limestone, used to help create artificial reefs for oyster revitalization projects. This project looked at how the size of limestone aggregate inside a cement mix affected the recruitment of oyster spat. Limestone screenings (< .6 cm), gravel (0.6 cm - 1.25 cm), and rock (1.25 cm - 2.5 cm) were used at a ratio of 4:2:1, four parts cement, two parts limestone aggregate, and one part water. The concrete was poured into a 0.5 L mold and cured for three days. The mold was removed leaving concrete and limestone plugs. Two plugs of each of the three aggregates were left at Joe Rains Beach in Cedar Key, Florida, for one month. This process was repeated for three months. To hold the concrete molds above the sea floor, an oyster T was used, leaving the molds hanging 25 cm from the sea floor. After collecting the plugs, counting both oysters and barnacles, the data was analyzed using a T test and an ANOVA test. With P values of 0.3 and 0.6, there is little support of the hypothesis that aggregate size will affect oyster spat recruitment.

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