

2019 UPDATE

September 24, 2019

University of Florida collaborators sampled oysters from the experimental plots at Bulkhead, Hotel and Dry Bar, and other areas in Apalachicola Bay throughout the 5-year project period. Dr. Kane and his team examined water quality and the general condition of oysters including internal parasites that cause Dermo disease in oysters, and severity of small shell-boring parasites (below). *Photos courtesy of Andy Kane.*

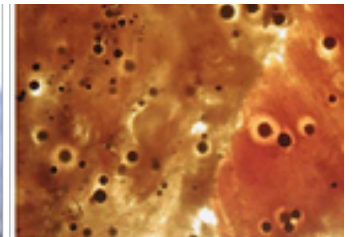


Shell-Boring Parasites Impact Oyster Shells in Apalachicola Bay

Shell-boring parasites affecting oyster shells in Apalachicola Bay include Polydora worms (left), Diplothyra clams (middle) and Cliona sponge (right). These parasites excavate thousands of holes in oyster shell (and other substrates, too). Temperature and salinity conditions influence shell damage by worms. Shells with lots of little holes erode more quickly, particularly since Bay conditions (like ocean conditions) continue to become more acidic over time. Constant shell erosion along with impacts from tidal and storm surge, and mechanical tonging and culling, leads to shell fragmentation and

loss of reef structure. Reduced oyster populations in Apalachicola Bay appears associated with fewer predators, such as oyster drills (bottom left), and reduced numbers of Dermo parasites (bottom right) that can impact live oysters. This project developed and applied standardized approaches to evaluate oyster and reef health in support of restoration monitoring. Loss of larger oysters that have greater reproductive potential,

and poor survival of spat and smaller oysters, may be related to observed changes in water quality that can impact vulnerable oyster life stages, inadequate reef structure for larval settlement, and a failure to thrive at the larger "reef scale." Conservation will be key to the prospect of a sustained rebound.



Downward Trend Continues in Oyster Abundance

The primary goal of the National Fish and Wildlife Foundation oyster restoration project was to determine the optimal density, or thickness, of cultch planted on degraded oyster bars in Apalachicola Bay. Three sites in the bay were selected for the study: one at Dry Bar in the western section, one at Hotel Bar in the central section, and one at Bulkhead Bar in the eastern section. At each of those three sites, five 2-acre plots were designated and cultched at different shell densities: 0 (no cultch added), 100, 200, 300, and 400 cubic yards per acre (Figure 1). The Florida Department of Agriculture and Consumer Services (FDACS) oversaw and completed the cultching in August 2015.

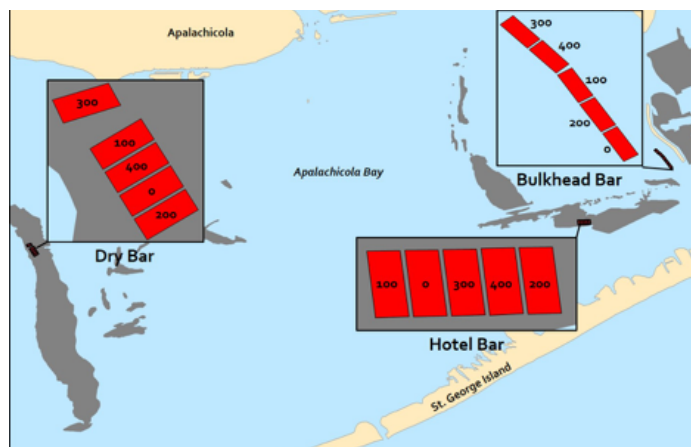


Figure 1. Layout and planting density (0, 100, 200, 300, or 400 cubic yards per acre) of the plots (red boxes) at the Dry Bar, Hotel Bar and Bulkhead Bar study sites in Apalachicola Bay, Florida.

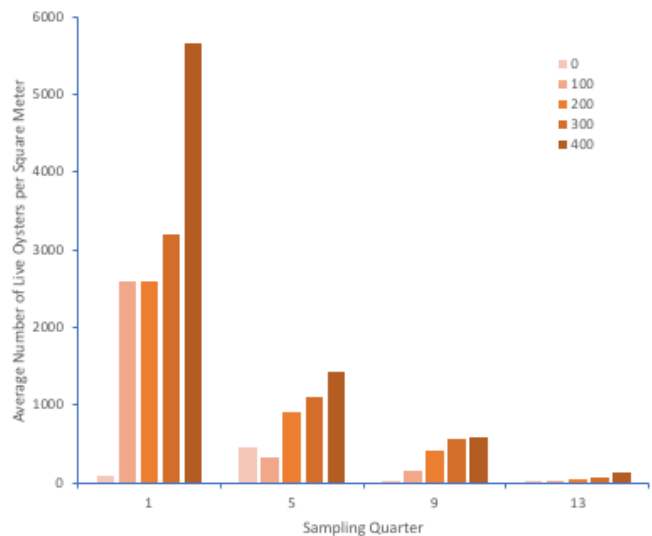


Figure 2. The average number of live oysters per square meter collected during the fall of each year (Quarter 1 = Fall 2015, Quarter 5 = Fall 2016, Quarter 9 = Fall 2017 and Quarter 13 = Fall 2018).

FWC researchers began sampling the cultched study sites in October 2015 and continued sampling them quarterly through September 2019. For each sample, researchers counted the total number of live oysters, then calculated an average number of live oysters per square meter. Results from the study illustrate how important habitat (cultch) is for oysters. The average number of live oysters per square meter was greatest at the plots planted with higher cultch densities (e.g., 400 cubic yards per acre) throughout the study even after overall oyster numbers declined in the bay (Figure 2).

Project funded by:



Learn more at:



UF/IFAS Extension Franklin County
<http://sfyl.ifas.ufl.edu/franklin/marine-and-coastal/oyster-recovery-home/>

Who can you contact with questions? These individuals are part of the research team and can provide more information about the project.

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