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Stockton Marine Scientists, NJ Division of Fish and Wildlife Monitoring Mullica River-Great Bay Estuary Oysters to Help Restore Population

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Galloway Township, NJ- The Richard Stockton College of New Jersey's Marine Science and Environmental Field Station and the NJ Department of Environmental Protection (DEP) Division of Fish and Wildlife's Bureau of Shellfisheries are working together to monitor the Mullica River-Great Bay Estuary's oyster population to determine possible sites where historical habitat can be enhanced and new habitat created.

The overall goal of the start-up is to establish a long-term program to monitor the seasonal settlement of young oysters, known as spat, in the Mullica River-Great Bay system. "In this collaborative program Stockton Marine Science students will serve as the field technicians, building their resumes with practical field experience, while providing the DEP with an enhanced monitoring program," said Steve Evert, manager of the field station and assistant director of academic labs.

The initiative will identify sites with the greatest restoration potential to enhance oyster reefs, Evert explained. The Bureau of Shellfisheries awarded $9,000 to Stockton's field station to cover the project costs and to pay student interns to collect the data.

Oysters are a keystone species, meaning that when their population is depleted, the effects are felt by many dependent species. They form reef-like habitat for fish and other marine life and act as natural water filters by ingesting suspended sediment during feeding. The Mullica River-Great Bay estuary holds the last two viable natural oyster seed beds on New Jersey's Atlantic coast.

The Division of Fish and Wildlife previously conducted enhancement and restoration work in the estuary with encouraging results.

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Expanding and supplementing oyster beds by providing additional habitat for spat could pave the way for future transplant of oysters to market beds for commercial harvest and possible transplant of oysters to other restoration sites on the Atlantic Coast.

New oyster habitat can help an ecosystem by improving water quality and providing essential fish habitat and can help the economy by providing opportunities for recreational and commercial oyster harvesting.

Knowing where and understanding why oysters thrive in certain conditions can help scientists determine where to spread crushed shell on the bay floor to give an oyster reef a head start. “If funding becomes available for a restoration project, the data gathered by Stockton can be used to help guide that project,” explained Evert.

Evert, Dr. Peter Straub, professor of Biology, Dr. Mark Sullivan, associate professor of Marine Science, and four Marine Science students and graduates are sampling recently spawned and settled oysters at 10 designated research sites to identify areas within the system with potential to naturally collect an oyster set. Data collection began this summer and will continue through September.

At each site, a mesh bag filled with 20 oyster shells is suspended one meter above the bay floor by a weighted buoy. Miniscule oyster larvae flow through the water column, guided by currents until they settle on the seafloor where they attach to other oyster shells or hard structures such as pilings. Some of those oysters land on the shells within the mesh bags, providing the researchers with a benchmark for each site.

The shell bags are taken back to a field station laboratory where spat are counted. The number of spat at each of the 10 sites is an indicator of the potential in each of those areas.

“You have to do your homework before investing time and money. Before you spend significant funds to bring crushed shell on a barge into the estuary, you want to pick the best spot for success,” Evert said.

Local watermen have noted that oysters are surviving farther up the river, driven by possible changes in water levels or hydrodynamics of the system. The oyster monitoring project spans an area from the bay/river interface near Graveling Point upriver and beyond the Garden State Parkway bridge about one mile.

The team is also using multibeam sonar to map the seafloor, which results in bathymetric (depth) data that includes the potential for bottom classification, a process which describes the potential suitability of existing substrate for oyster settlement. Bathymetric data helps avoid steep slopes that are often an unstable location for an oyster reef because the shell would slide down to deeper water or be covered by depositional sediments. It would also be a difficult place to harvest oysters.

“The collaborative project offers students the opportunity to gain summer research experience and helps the New Jersey Division of Fish and Wildlife to establish a long-term oyster monitoring program. This is year one of hopefully many more to come,” said Evert. # # #