Delaware State University College of Agriculture and Related Sciences

Land-grant Research


*Research in Ecosystems Health, Shellfish Aquaculture, Habitat Restoration and Aquatic Microbiology in Delaware's Bays*

Research and outreach education programs in this area focus on oyster habitat restoration and revitalization of critical estuaries in Delaware's bays. Research efforts identify environmental stresses and relationships between water quality and naturally occurring bacteria that could pose harm to both aquatic species and humans. Studies include examining the cellular response and population structures of several harmful algal species in Delaware waters resulting from temperature, CO2, nutrient, and other changes associated with climate change phenomena.

To enhance the oyster populations and improve water quality conditions in Delaware, Delaware State University has collaborated with the Center for Inland Bays and the Delaware Sea Grant Marine Advisory Program on an oyster gardening restoration program. Various culturing techniques have been used to investigate ecological and biological impacts of these efforts. This study also examines population structures and spat recruitments in and around oyster beds in the Delaware Bay and rip-rap planting of rocks along the canals. Residents in Sussex County have volunteered the use of their docks for oyster gardening, and graduate student workers have gained hands-on training in monitoring and surveying oysters.

Outreach efforts to the communities around the watershed includes workshops, hands-on training, an informative video, and surveying of the attitudes toward the restoration.

An NSF EPSCoR funded project, "Ecological Monitoring of Bacterial Loads in Eastern Oysters (Crassostrea virginica) Along Indian River Bay, Delaware," subsidized the monitoring of bacterial and total Vibrio loads along the oyster gardening locations in the Indian River Bay. Water quality, oyster growth, and ecosystem value of these floating gardens were also monitored. In the last four years, relationships between the water quality parameters, nutrient concentrations, and bacterial levels have been monitored to determine the effects of water quality on the total bacteria and total Vibrio concentrations.

*Through the newly established Food Safety laboratory, funded by USDA-FSIS, DSU conducts inspections of catfish fillets purchased from retail outlets in Delaware, Maryland, Virginia, and Washington, DC, by testing for the presence of Salmonella species and generic Escherichia coli. The collaboration among DSU and USDA-ARS Laboratories and other research institutions on this project allows faculty and students to engage in comprehensive seafood quality monitoring and hands-on training efforts.*

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