RUTGERS
School of Environmental and Biological Sciences

Shell Hash Cover as a Deterrent of Cownose Ray Predation on Hard Clam Farms

Funding Provided By: National Institute of Food and Agriculture, U.S. Department of Agriculture, Northeast Sustainable Agriculture Research and Education program subaward number **ONE20-373**

Project PIs: Daphne Munroe, Jason Morson, Tom Grothues, Rutgers University
Farmer Investigator: Dale Parsons

Summary of Main Results

Environmental change has presented new challenges for hard clam farmers, while a growing demand for limited shellfish leases creates a pressing need to utilize idle farm leases. The objective of this project was to use farm-scale, collaborative experiments to assess the application of shell hash as a deterrent of cownose ray predation. If successful, this strategy would support methods to use hundreds of idle deep-water leases, while reducing labor costs.

We evaluated hard clam seed survival and growth at three replicate plots of each of three treatments (9 plots total): unshelled bottom, shelled bottom, and predator screens. Results showed that the shell planted on the shelled treatment plots remained stable in terms of fragment distribution over the 20 months of the experiment. Further, the **shelled treatments supported twice the survival of planted seed, and twice the recruitment of new clams.** Clam seed on shelled plots grew at the same rate as that observed at control and netted plots. Finally, rays were tagged and observed using telemetry within and around the experimental plots, providing evidence that this technique for observing predator behavior is feasible in back bay habitats and on clam farms.