VIMS Researchers Are Domesticating the Wild Clam

Researchers at VIMS just began a new experiment that may change the future of clam farming in Virginia. Dr. Mark Camara, Breeding Research Manager for the VIMS Aquaculture Genetics and Breeding Technology Center at VIMS, led a team that planted hundreds of thousands of clams for monitoring from Mobjack Bay to the Eastern Shore in cooperation with commercial clam growers who are providing growing space and logistical support. Camara explained that the purpose is to determine through genetic experimentation which clams thrive best in various environments and to begin selective breeding to improve them.

Dr. Camara began this experiment at the center's clam hatchery at the Eastern Shore Laboratory in Wachapreague with five of the most common clam stocks purchased by Virginia growers and mated these five strains in all possible pair combinations, resulting in 15 distinct genetic lines. The 15 lines of clams are being planted in areas of different salinity and will be monitored for about two years to see which clams perform best in each environment.

VIMS team planting clams at one of several research sites.

Camara will be looking for clams with high survival and fast, uniform growth. The time spent harvesting clams is greatly reduced when all the clams in a planted bed grow at a uniform rate, allowing all clams to be harvested at the same time without requiring the replanting of those that haven't reached market size. Commercial growers see greater returns when they can save the effort of replanting slow-growing clams.

The clams will also be monitored for resistance to the recently discovered clam disease QPX. QPX was first observed in New Brunswick, Canada in the 1950s and has recently been detected farther south. The parasite is common in parts of Massachusetts, where some productive clam growing areas had to be abandoned. It was first detected in Virginia waters in 1996 by VIMS researchers. Last summer the disease caused sufficient mortality to have an economic impact on Virginia clam growers for the first time. One Eastern Shore grower lost an entire crop to the disease. Finding clam strains resistant to QPX can help avoid such losses in the future.

"Clam farming is very new compared to land-based agriculture," Camara commented, " and the clams being farmed have only been in the hatchery for a few generations. This can add difficulties in farming because they really aren't yet adapted for domestication."

Camara says to get stocks that perform well in different areas, "You need to do more that just breed big clams with big clams. There's no such thing as a 'super clam' strain that will survive and grow under any conditions," he says "You've got to tailor the animals' genetics to environmental conditions, and that is a big part of our mission at the center. Right now, most clam aquaculture takes place on the Eastern Shore. We're planning to develop a number of strains that thrive in other areas and make aquaculture profitable in a wider range of environments."

site.

Under the direction of VIMS scientists, the dredge operators removed sediments from the bottom of the Pamunkey River and a small channel in one of the marshes just upstream of West Point. The material was sprayed onto test plots, which have been studied by researchers for the past year. The experiment will allow VIMS scientists to document the hope to discover if the technique has promise as a beneficial use of dredged material to help marshes sustain themselves in the face of rising sea level.

Scientists expect to see the first evidence of effects next spring when the marsh vegetation begins to regrow. The experiments on the Pamunkey marshes will extend over four years.