2011 Mini Grant Program Summary

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The mission of the Southeastern Massachusetts Aquaculture Center (SEMAC) is to foster the sustainable development of private and public aquaculture endeavors within the southeastern region. This is accomplished by providing technical and economic assistance, supporting research, and developing best management practices and demonstration projects. Since 1998 SEMAC has administered a grant program designed to support projects that advance the aquaculture industry or address an industry problem. In 2011 fifteen grant applications were received and seven were chosen based on clarity, collaboration, outreach, degree of innovation, responsiveness to the listed priorities, applicability of results to the aquaculture industry, ability of the applicant to complete the work proposed, proper permits, technical and economic feasibility, appropriate budget, matching funds, and leveraging of other resources. A progress report and a final report were required from each awardee. This report includes the 2011 project summaries.

The Work of Aquaculture: A Preliminary Study with a Few Suggestions

Shellfish aquaculture is hard work and many long time growers deal with a set of injuries, aches or pains. The goal of this project was to develop efficient, inexpensive solutions to those things in the aquaculture business that take too much time, are generally inefficient and wear bodies down.

A survey was designed to determine what types of gear growers use and what their most common injuries are. The grower then designed and built three gear modifications to make work easier, safer and more productive. Photographs of an on-deck quahog culling speed rack, the oyster culling table with built in shellfish measuring slots, and a stationary bag jig are included here.

The shoulder high swiveling bag jig can be seen in a video on the SEMAC website at http://www.capecodextension.org/marine-programs/aquaculture-semac/mini-grant-program/.

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Updating Gilbert Trout Hatchery, A Historic Trout Hatchery

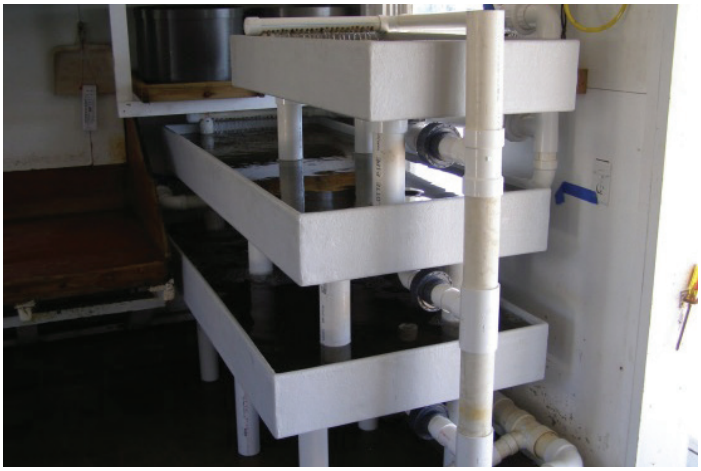
The aim of this project was to determine the best way to exclude predators such as raccoons, herons and osprey from eating the trout at a hatchery. The ideal method and material would exclude predators, withstand the elements (sun and heavy snow), be easy to work with, and be inexpensive. The hatchery operators tried several methods from lightweight bird netting strung over PVC posts to heavier wooden posts with single lines of wire. They identified several successful methods and ruled out a few unsuccessful ones.

Re – "clam" ation, Provincetown

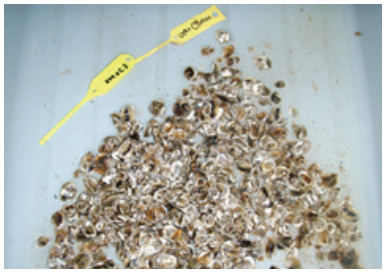
Quahog farming in Provincetown was devastated in 1997 due to the disease QPX. Subsequent efforts to grow quahogs have been unsuccessful. The goal of this project was to try a new approach - growing quahogs in ADPI bags attached to a long line rope anchored in the sand. The work took place on an existing aquaculture lease area. Quahog seed were deployed in July. When assessed in October the mortality was low and the seed had increased 5mm in size. The clams were then buried in the sand for over wintering. Survival was variable.

Nursery and Grow-out Modification of Razor Clam Culture Techniques

Aquaculturists in the region have been interested in growing razor clams (Ensis directus), but have encountered challenges raising the seed. The goal of this project was to test a newly developed nursery raceway grow-out system for razor clams. The system was designed to grow the seed quickly by providing a substrate similar to that found in their natural habitat, and to reduce or eliminate the biological fouling which tends to occur on the animals. Unfortunately, razor clam seed was not available for the 2011 growing season. To keep the project moving the growers decided to use quahog seed instead to test for differences between the newly designed raceway and the more traditional upweller system. The quahogs grown in the raceways grew faster and more uniformly than those grown in the upwelling system and no mortalities were observed in either system. Razor clam seed was available in 2012 and the growers continue to refine the methods of raising razor clams.



Disease-resistant Oyster Strains to Promote Sustainable Aquaculture in Massachusetts



The goal of this multi-partner study was to evaluate growth and mortality of proven disease resistant stocks of oysters and their hybrids, and then compare their growth and survival to commercial strains on shellfish farms in Buzzard's Bay, Duxbury, and Wellfleet. The ultimate goal is to develop a strain of oyster that will perform best in the conditions provided in southern Massachusetts. The oyster seed were raised in upwellers at the Woods Hole Marine Biological Laboratory and were tested for disease before distribution to participating farms. Length and survival were quantified at periodic intervals. As of November 2011 growth varied among the different sites and the three strains had similar survival.

Fresh Water Prawns (Macrobrachium rosenbergii) in a Recirculating System

The goal of this project was to try growing freshwater prawns in an existing aquaculture and aquaponics facility that had been growing tilapia, and to test the local market to see if there was an interest in this product. An existing 6000 gallon indoor raceway was modified by installing rack systems for the prawns to grow on. Energy efficient pumps were also installed to increase water circulation. Aquaponic plants were successfully grown in concert with prawns and useful information was gained about screen structures, prawn feed types, and maintaining water quality. Although the survival rate of the prawns was lower than expected the project yielded useful information to continue to move forward with the endeavor. A presentation about this work was given at the World Aquaculture Society Meeting in 2012 in Nashville, TN.

The Use of Natural Materials in Oyster Culture

Many plastic materials are used in oyster culture. The goal of this project was to demonstrate that inexpensive natural materials such as native pine can be substituted for plastics. A grower in Eastham used native pine and lobster pot warp to create a longline system for growing oysters. He compared the cost of setting up this system with the cost of using PVC pipe and found that the natural material system could be built for less money. The system worked well in its first year and the grower continues to monitor it's durability throughout the seasons.