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# The Shellfish Corner: The Luther H. Blount Shellfish Hatchery of Rhode Island

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# THE LUTHER H. BLOUNT SHELLFISH HATCHERY OF RHODE ISLAND

By Michael A. Rice\*

According to statistics maintained by the state Coastal Resources Management Council, in 1995 there were only 6 shellfish farms in the state with a total area of 9 acres, producing US\$83,518 in shellfish in farm-gate value, mostly oysters, and employing 8 people, all part time. Over the years, the shellfish farming industry in the state has been growing in excess of 10 % per year, such that in 2015 the farm-gate value of Rhode Island's cultured oysters was about US\$5.6 million, from 61 farms on about 241 acres of leased grounds. At present, 171 people are now being employed directly by these farms with many others added due to an increase in "seafood tourism" based on a growing number of trendy oyster bars popping up about the state.

One of the important support facilities for this growing industry has been the Luther H. Blount Shellfish Hatchery at Roger Williams University (RWU) in Bristol, Rhode Island. This facility was built in part through the philanthropy of the Blount Family of Warren, RI. Luther H. Blount (1916-2006) owned a boat building company in Rhode Island, but his family was heavily involved in the Narragansett Bay oyster industry during its heyday in the late 19<sup>th</sup> and early

20<sup>th</sup> Centuries. Luther had grown up on the oyster farms, learning the trade. When oyster farming fell into decline between the 1920's and 1950's due

In my home state of Rhode Island, aquaculture of molluscan shellfish, particularly American oysters, *Crassostrea virginica* has been a growing business concern since the mid-1990s, when the state legislature took up the task of revising the aquaculture laws, streamlining the permitting process.



Hatchery Manager Karin Tammi (center left) with RWU student helpers Jared Kurkoski (left), Aimee Herbert (center right), and Shannon Aurigemma (right). Photo by M.A. Rice.

to water pollution, destruction of infrastructure by the Great Hurricane of 1938 and socio-economic changes in the state, the Blount Family diver-

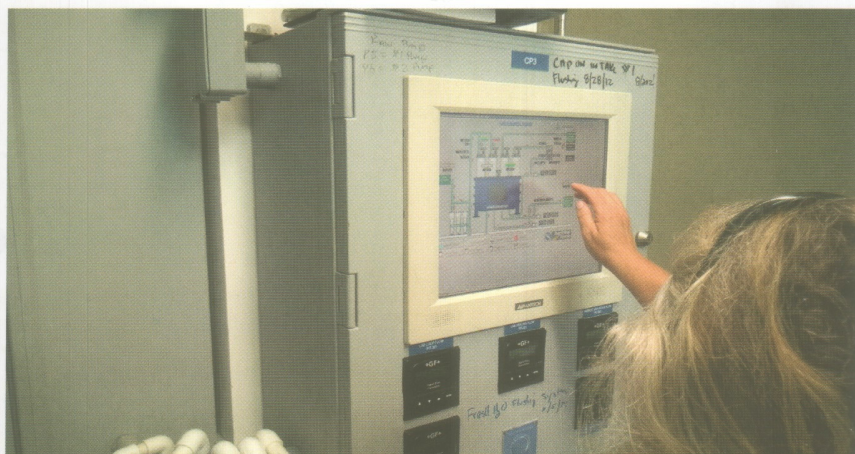


## THE SHELLFISH CORNER

sified their businesses away from the oyster farms, and Luther came to be known as the 'father of the small-cruise ship' as his boat-building business was formed just as travel tourism began to become immensely popular among the American public. But throughout his life it had been Luther's dream to restore the oyster farming industry of his youth back to Rhode Island. Somewhat as a hobby in 1977, he established some seawater ponds on the north end of Prudence Island in Narragansett Bay in which he began growing some oysters and he began to educate the public about oyster farming by funding an oyster farming display at the Roger Williams Park Natural History Museum in Providence.

In 2004 work to spawn oysters and shellfish at Roger Williams University began with the hire of Ms. Karin Tammi to oversee shellfish production and research, using funds received by RWU from the US Federal Government as part of Senator Jack Reed's 2004 RI Aquaculture Initiative. Ms. Tammi had gained considerable experience with shellfish by serving as the manager of the shellfish restoration effort resulting from the 1996 *North Cape* oil spill and involvement in the 1999-2003 effort to establish *The Hope Shellfish Company*, a privately funded hatchery in nearby Portsmouth, RI. The original shellfish hatchery at RWU utilized space in the basement of the new Center for Environmental & Economic Development and a traditional greenhouse that had been constructed as part of that building. Shellfish seed produced in this new RWU hatchery was used to support a number of restoration efforts by the RI Shellfishermen's Association and the state Division of Fish and Wildlife, while serving primarily as a practical instructional opportunity for marine biology students at RWU.

It was these common interests in restoring shellfish and the oyster aquaculture industry in Rhode Island that prompted Luther in 2004



The touch screen process control & alarm system at the Blount Hatchery by the Advantech Company. Photo by M.A. Rice.



Algal flask cultures in an incubator at the Blount Hatchery. Photo by M.A. Rice.



RWU student Aimee Herbert maintaining the phytoplankton batch cultures in the hatchery greenhouse. Photo by M.A. Rice.

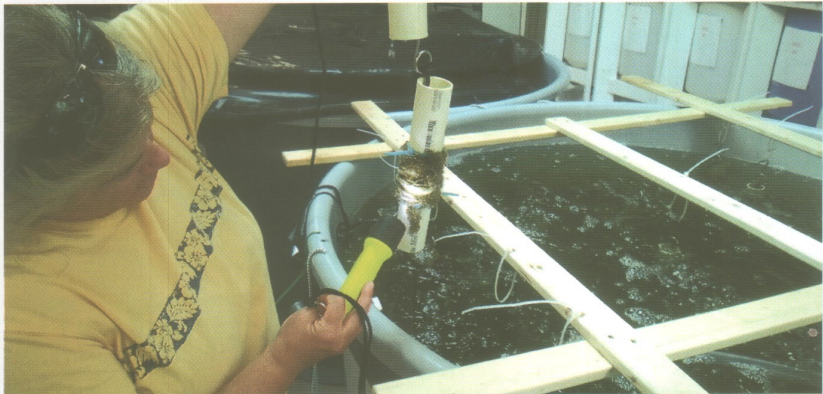


to contact Ms. Tammi at the hatchery, to produce seed oysters for his Prudence Island oyster ponds. Luther was so pleased with the work being done at the small hatchery that he approached RWU President Roy Nirschel in 2005 about expanding collaboration with RWU in the hatchery production of shellfish for restoration, and exploring the possibilities of expanded hatchery capabilities. This initial relationship between Luther Blount and RWU resulted in a sizable philanthropic bequest by the Blount Family for the expansion of the hatchery, with continuing support from the Blount Family over the years for continued operations.

Although the Blount Hatchery has been designed as a research hatchery with heated and cooled seawater drawn from nearby Mount Hope Bay, it is operated primarily by undergraduate students drawn from the RWU Marine Biology Program under the supervision of Ms. Tammi. Since the academic year (and student availabil-

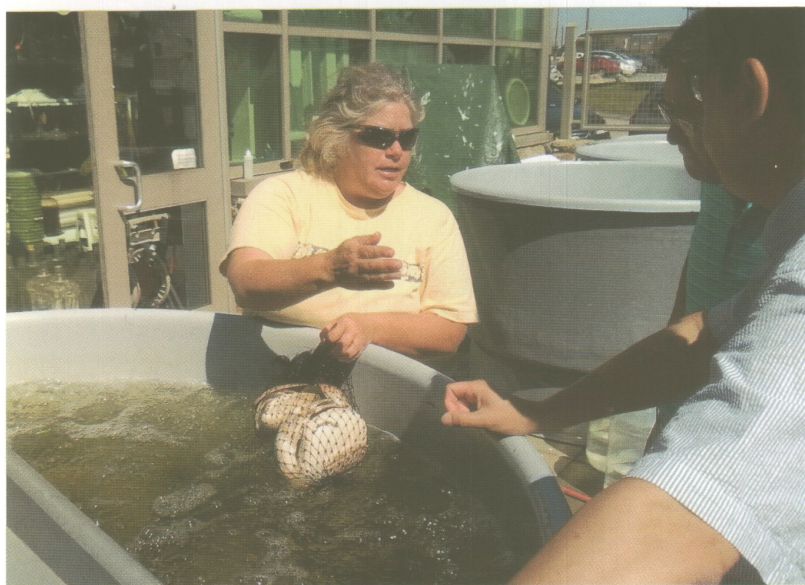


Ms. Karin Tammi showing the fluidized bed upweller tubes for culturing of post set bivalves in the 1 to 3 mm size range. Photo by M.A. Rice



Ms. Karin Tammi demonstrating the tank setting techniques for blue mussels (*Mytilus edulis*) onto a fibrous spat collector material. Photo by M.A. Rice.





Ms. Karin Tammi demonstrating the technique of remote setting of oyster larvae onto shells of sea clams held in plastic mesh bags. Photo by M.A. Rice

ity) does not fully align with the shellfish production season, the Blount Hatchery was designed to be highly automated with alarm systems to notify the hatchery manager and others by cell phone, and email alerts. The hatchery is engaged in year-around production of several species of phytoplankton in a 488 sq. ft (46 m<sup>2</sup>) attached greenhouse, and it serves as a reliable local source for phytoplankton starter cultures for other institutions in the state and region.

Ms. Tammi had employed two innovations at the hatchery to increase production in the relatively confined space of the 928 sq. ft. (87 m<sup>2</sup>) hatchery floor. The first of these is an adaptation of *banjo filter* technology that was originally designed for culturing larval fish by tropical fish breeders in the aquarium fish trade who were interested in high larval production in situation where space is limited. These banjo filters, first used in a hatchery in British Columbia, allow for a constant flow of water through larviculture tanks and they have proven to be able to successfully rear considerably more larvae than in standard static tank larviculture in which tank water is

changed only once daily during the draindown process. The use of banjo filters in the Blount hatchery allows for as much larval production from small 2-m<sup>2</sup> tanks as would be produced in static tanks with four to five times the volume.

The other major innovation incorporated into the Blount hatchery is the fluidized bed or modified 'soda bottle' upweller system for culture of small post-set shellfish seed. Ms. Tammi first constructed the prototype fluidized upweller system using 1-L plastic soda bottles similar to a system designed by Mr. Kazuhiro Kurosawa for use in the production of Manila clam seed at a hatchery in the Philippines. These soda bottle upwellers proved to elicit very good growth of a number of species of shellfish seed, however later modification of the upwellers using rigid polycarbonate plastic tubes proved to be a considerable improvement over the original soda bottles. Between the banjo net larval rearing system and the fluidized bed upweller system, the Blount hatchery is capable of producing considerably higher numbers of seed than many other hatcheries of comparable floor space.

Due to its flexible design with multiple tank systems that allow for simultaneous experimental replication, the Blount Hatchery has been the site of numerous collaborative research projects among researchers from around Rhode Island and the region. Notable recent projects have included a study by Drs. Marta Gomez-Chiarri and David Rowley of the University of Rhode Island and Dr. Dale Leavitt of RWU to test the efficacy of recently isolated strains of probiotics to protect oyster larvae from vibrio bacterial disease, and to potentially control vibrio populations in adult oysters. Performance testing of various disease resistant strains of oysters from different genetic lines has also been conducted.

The Luther H. Blount Shellfish Hatchery at Roger Williams University has been an outstanding collaborative resource for the State of Rhode Island, the shellfish aquaculture industry and the shellfish restoration community. In addition to serving as a collaborative partner among shellfish researchers from a number of academic institutions and governmental laboratories in the region, the Hatchery continues to fulfill its major purpose of providing practical training for undergraduate marine biology students at RWU, many of whom are moving on to become highly competent professionals within the field. [am](mailto:am)



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