

As I prepare for graduation, I feel fully equipped with the knowledge and skills necessary to succeed in life after college. Perhaps the most valuable learning experience has been my time working at Cat Cove Marine Laboratory. I started working at the lab in summer 2008 at the encouragement of Dr. Joe Buttner, my Fish Biology (BIO323) professor. My primary responsibilities at the lab involve the maintenance of fresh water and marine finfish, growing algae, monitoring water chemistry, and propagation of softshell clams. I had several opportunities to assist in the field, trudging through mud to sample clams planted in various Boston area tidal flats!

Beyond taking traditional classes and working at Cat Cove, I have been instrumental in the formation of Salem State's SCUBA club. Currently I am the club's vice-president. After graduation, I plan to pursue a career in aquaculture or do research on algae for use in biodiesel production. I would also like to work part-time as a SCUBA instructor.

A BIG thank you to our summer crew, whose assistance made NEMAC's first decade of successful and FUN!



NEMAC summer 2009 crew: Dana Monteiro, Mark Fregeau, Cheyenne Azadan, Heather Tierney, Julie Greenwood, Scott Weston, Ashley London, Ted Maney, Echo Bradt, Dr. Joe. Not pictured are Brian Preziosi and Jessica Craney.

Professional contributions take many forms including publications, professional and technical presentations. Recent publications and reports during the 2008-2009 academic year include:

Fregeau, M., J.K. Buttner and S. Weston. 2008. Potential Commercial and Ecological Benefits of Mussel Culture in Coastal Waters. Journal of Shellfish Biology, 27 (4):949-950.

Getchis, T., D. Alves, R. Barnaby, C. Bartlett, W. Burt, J. Buttner and 24 others. 2008. Northeast Aquaculture Extension Network. Journal of Shellfish Biology, 27(4):951-952.

Buttner, J.K. G. Karr. 2008. Hawaiian Culture and Aquaculture. Journal of Shellfish Biology, 27 (4):945-946.

Murphy, D., W. Burt, J.K. Buttner, Cl. Goudey, and C. Hollingsworth. 2009. Aquaculture Situation and Outlook Report 2009: Massachusetts. NRAC Publication No. 103-2009. Northeastern Regional Aquaculture Center, College Park, MD. 9 pp.

CALENDAR

MARCH 1-5, 2010

Aquaculture 2010, Town and Country Resort and Conference Center, San Diego, CA.
Contact: Aquaculture 2010, Conference Management Office, P.O. Box 2302, Valley Center, CA 92082, 760.751.5003

DECEMBER 1-3, 2010

Northeast Aquaculture Conference and Exposition (NACE) 2010, Radisson Hotel, Plymouth, MA.
Contact: Bill Burt, SEMAC, Deeds and Probate Building, Railroad Avenue, Barnstable, MA, 508.375.6702

NEMAC News is published by the Northeastern Massachusetts Aquaculture Center, housed at the Cat Cove Marine Laboratory operated by Salem State College. The Cat Cove Marine Laboratory physically includes a 5,500 ft² laboratory and an 8 acre, tidal pool, Smith Pool. For more information regarding aquaculture initiatives by NEMAC and Salem State College or to be added to our newsletter mailing list contact the Cat Cove Marine Laboratory at 978.542.6821 or Dr. Joe (jbuttner@salemstate.edu) or Dr. Fregeau (mfregeau@salemstate.edu) or visit our new website salemstate.edu/academics/schools/1028.php.

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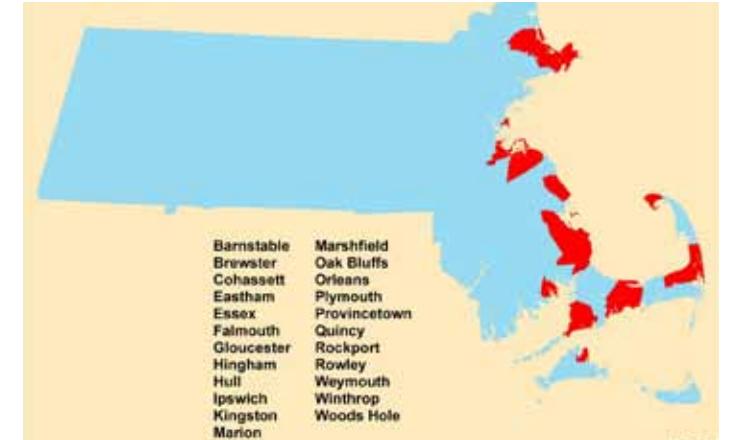
In 2009, NEMAC and the Cat Cove Marine Laboratory celebrated 10 years of existence and service to the Commonwealth.

More than a decade has passed since then Governor Paul Cellucci dedicated the laboratory on a brisk April morning in 1999. Since his visit, many positive advances have been nurtured by NEMAC personnel.



The Cat Cove Marine Laboratory continues to grow and contribute to the economic and cultural growth of coastal Massachusetts.

Arguably the most significant NEMAC contribution has been the development of a vibrant aquaculture initiative on the North Shore, where none previously existed. Residents in some coastal communities now pursue commercial aquaculture; other towns practice public aquaculture and several embrace both pursuits. Over the decade, NEMAC has assisted over two dozen Massachusetts communities from Cape Ann to Cape Cod and the Islands as they explored and, ultimately, selected the most appropriate aquaculture option(s).



Coastal towns north and south of Salem have received aquaculture assistance from NEMAC.

NEMAC initiatives have focused on marine bivalves. Nearly 20 million juvenile softshell clams (*Mya arenaria*) have been spawned and distributed to coastal communities in Massachusetts. More recently, collaborative projects with Cape Ann communities are moving culture of blue mussels (*Mytilus edulis*) toward commercialization.



James Courtemanche harvests small mussels from Smith Pool adjacent the Cat Cove Marine Laboratory for transfer to growout sites off Cape Ann.

Freshwater aquaculture has not been neglected. More than 80 K-12 teachers have gained confidence and competence in aquaculture from NEMAC sponsored courses and hands-on assistance. Teachers from Salem, Gloucester and Wilmington, to Springfield, Lawrence, Lowell and Lexington, as well as into New Hampshire, now offer aquaculture enriched experiences in their classrooms and view the Cat Cove Marine Laboratory (CCML) as an invaluable assist. Graduates from these schools are now enrolled at Salem State, such as Franki Vetrano-Olsen and Jamie Collins, both recently graduated from Essex Agriculture and Technical High School in Danvers.

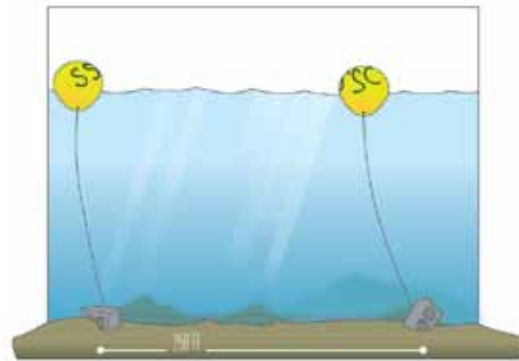
Former student workers at CCML and students enrolled in the Aquaculture Concentration have graduated and are currently employed in aquaculture; including, Jason Best at Brigham & Women's Hospital in Boston, Nick Scire formerly of Calais, Maine who recently relocated back to his home in Stoneham, Massachusetts, and Jamie Masterson (formerly Coffan) at the Pendills Creek NFH, in Brimley, Michigan. Others such as Tara Pelletier, Matt Lotti, Sean Marcisin, and Mae Taylor are enrolled in graduate schools from Massachusetts to the west and Gulf Coasts.



Jamie Masterson strips roe from a female salmonid.

In but one decade, NEMAC and the CCML have become invaluable resources and catalysts for sustainable aquaculture in Massachusetts, and beyond! Continued contributions and expanded relevance are eagerly anticipated as we transition into our second decade.

The City of Salem requested NEMAC personnel to examine the use of a proposed dredge site in Salem harbor by spawning and juvenile winter flounder (*Pseudopleuronectes americanus*).



Schematic of trotline setup in Salem harbor.

In spring 2009, the site was sampled by baited trotline and plankton tow. No adult or larval flounder were collected, although adult skate (N=21, *Raja erinacea*) and larval perciform (N=2) and scorpeaniform (N=3) fishes were collected by trotline sets and plankton tows, respectively. Most skates and all larval fish were collected at night. Data indicate that winter flounder, if present, were not abundant during April 2009. It is unlikely that the site represents important spawning habitat for winter flounder and that proposed dredging would not impact flounder reproduction.



From left: Ashley London, Dr. Joe, Cheyenne Azadan, and Scott Weston retrieve plankton net and sample.

Twenty-thousand leagues under the sea and giant squid; not quite!

Recently, Salem State student Dana Monteiro voiced his interest in squid and a desire to work with them. A junket to Woods Hole and the Marine Biological Laboratory was arranged. Squid eggs were obtained and brought back to the Cat Cove Marine Laboratory. Dana has determined that eggs are hardy and hatch rate is high. Recently hatched squid flash colorfully, but sadly have a tendency to die. However, careful manipulation of air and water flow coupled with brine shrimp densities > 5/mL have resulted in an estimated 10,000-12,000 squid being successfully maintained. Dana plans to continue his research and further refine culture protocols to enhance survival of just hatched squid, perhaps ultimately habituating hatchlings to pelleted feed. An oral presentation was made at the Sigma Xi meeting on February 27 at Salem State.



Squid deposit eggs in clusters that resemble a banana bunch.

Kudos to Ms. Emily Crescenzi, undergraduate student majoring in geology, who worked on a collaborative study involving NEMAC, the MA Division and Marine Fisheries and the Department of Geology. Ms. Crescenzi and her advisor, Dr. Brad Hubeny (associate professor in geology) conducted sediment analysis at sites where softshell clams were being restored. Her findings were presented at the New England Estuarine Research Society (NEERS) meeting in April 2009. Her poster won the Best Student Poster award!

From left: Dr. Brad Hubeny, Ms. Emily Crescenzi and Dr. Joe with the award-winning poster at NEERS meeting.



Heather Tierney sorts baby clams for seeding on tidal flats in Massachusetts.

Student perspective

by Heather Tierney

My time at Salem State College has been entirely rewarding. I transferred from Northeastern University in Boston to Salem State after a two-year break, during which time I worked at Undersea Divers in Beverly as a Divemaster. I am now a senior biology major.

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