

SEM TIDINGS

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SOUTHEASTERN
MASSACHUSETTS
AQUACULTURE
CENTER

VOLUME 9 ISSUE 1

FALL 2017

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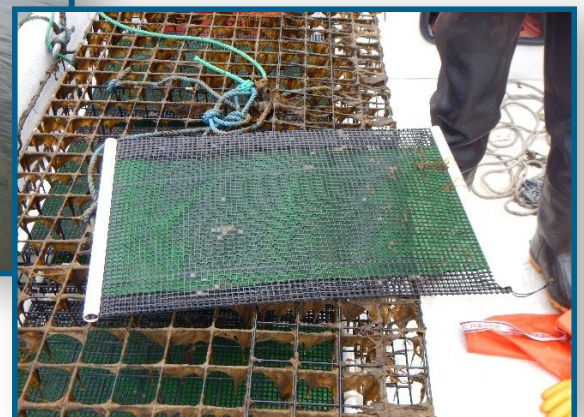
TECH TALK

Experiences Starting Small Oyster Seed Without an Upweller

By way of Joshua Reitsma

Upwellers have become so standard in oyster farming over recent years it seems small oyster seed is considered to have poor nursery survival unless an upweller is used. While juvenile oysters may be most vulnerable to predation and the elements at their smallest size there may still be viable alternatives to upwelling systems. Initial research from Auburn University in Alabama has indicated transferring seed to nursery bags at small sizes can improve growth without sacrificing survival of the seed (Taylor et al. 2013). To further demonstrate the potential for upwelling alternatives, two trials at growing small oyster seed with and without upwellers in several MA growing areas were attempted.

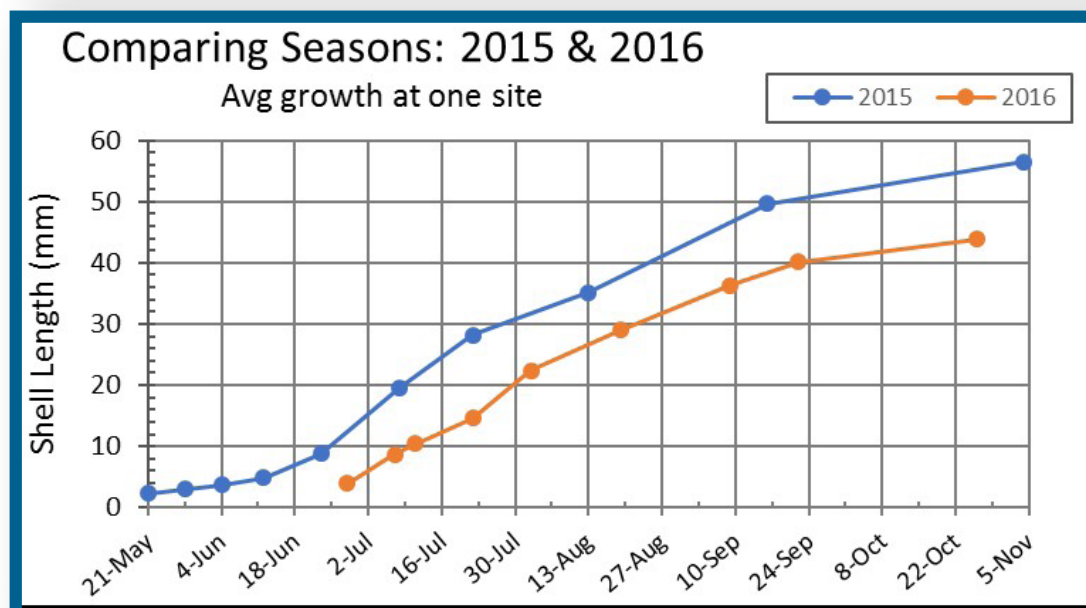
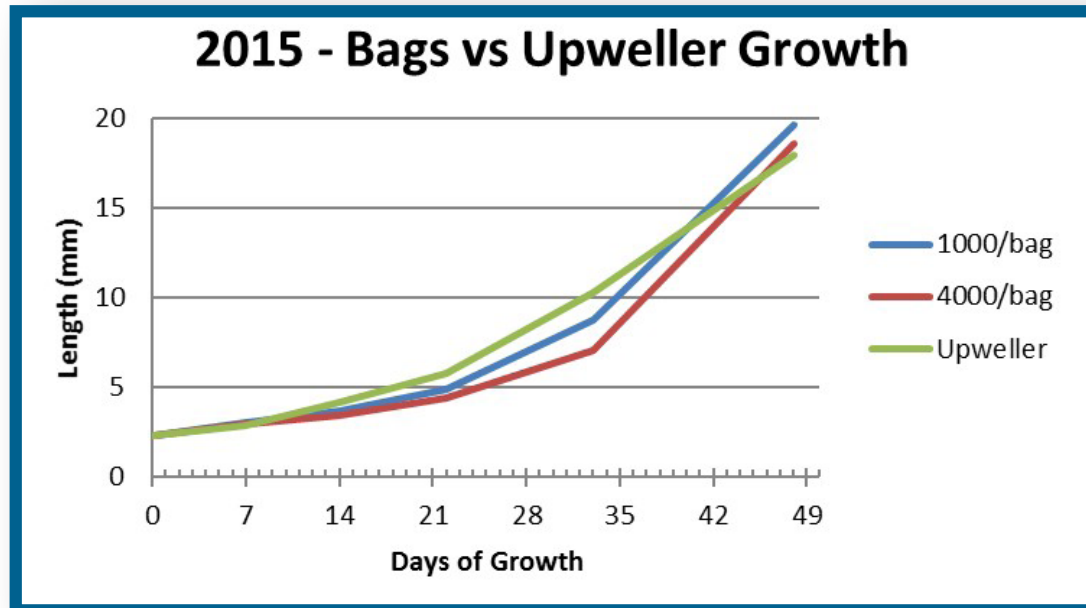
The 2015 field trial began with obtaining oyster seed at an average length of 2.3mm (± 0.4 mm) on 5/20/2015, while the 2016 trial started with oyster seed at an average length of 4mm (± 0.8 mm) on 6/28/2016. In each year the oyster seed were deployed in at least one traditional upweller, and field nursery bags at different densities. The nursery bags consisted of a 0.75mm (green) spat bag within a 9mm mesh ADPI bag to add structure and allow the spat bags to lay flat without any folding or crumpling of the spat bag. The 2016 trial also added a second bag system fabricated out of stitched fiberglass window screen (~ 1 mm mesh) to make 2 pouches laid flat inside an ADPI bag just like the spat bag system. The seed bags were flipped and measured weekly.



TECH TALK

Oyster growth in both years had oysters exceeding $\frac{1}{2}$ " (12mm) within 3-7 weeks depending on site, year, and starting size. Upweller comparisons showed a slight growth advantage early before reaching about 10mm in length, thereafter oysters grew just as well or faster in bags compared to upwellers. The yield of surviving oyster seed is one area where the upweller seemed to provide consistently better results. While some nursery bag trials provided yield at or close to 100% of stocking number, particularly with the window screen, results in the nursery bags were more inconsistent than with the upwellers. Regardless, the yield and growth performance was good enough to consider this an alternative to buying larger seed at 2-5 times the price or invest in the more expensive infrastructure.

Starting with 3-4mm oyster seed seems a viable alternative to upwellers in smaller or beginning farm operations if seed are handled carefully. It should be noted, scale of production is an important consideration as an upweller will become more efficient as the quantity of nursery bags needed grows with farm size. Window screen bags worked just as well if not better than spat bags in field deployment of small seed and can be custom designed fairly easily to allow easier handling. The results indicated not to exceed 2000 oyster seed per spat bag (1.11 oysters per cm²), except for maybe the very early phase of growth, but if the 2000 seed can be further subdivided as was done with the window screen pouches (1.67 oysters per cm²) both growth and yield per unit of surface area improved. Getting seed at a time of year when temperature and food in the water spurs rapid growth will also limit time needed in the small mesh which can foul over quickly, growth was much more rapid in June for us.



Piloting Surf Clam Aquaculture Techniques

By way of Diane Murphy, Joshua Reitsma, and Kris Clark

In March 2017 the Aquacultural Research Corporation (ARC), Cape Cod Cooperative Extension/Woods Hole Sea Grant (CCCE/WHSG), SEMAC, and Roger Williams University all began work together on a surf clam project with funding from the NOAA Saltonstall-Kennedy Competitive Research Program.

The goal of the project is to determine the best locations and conditions to commercially grow out surf clam seed in order to provide wholesale and retail markets with a new product called, "butter clams." Butter clams are surf clams (*Spisula solidissima*) that are grown to only 1.5 to 2.0 inches long. This Summer and Fall the

field work team has been planting, sorting, grading, and sampling surf clams at 4 different locations. Three grow-out methods are being tested - bottom planted under nets, placed in Florida-style mesh bags, and placed in mesh bags in cages that are usually used for growing oysters. Field work will continue into 2018, and once all the data is analyzed, the project team will publish recommendations for the best growing strategies with respect to temperature, sediment type, tidal height, gear, and predator control. Below are some photos from summer and fall field work.



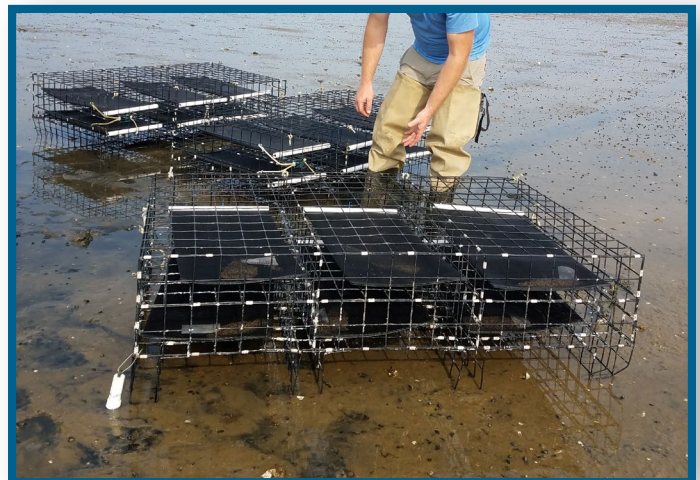
Surf clams, *Spisula solidissima*



Surf clam seed being sorted in July 2017.



Sorting and weighing seed at the Cape Cod Cooperative Extension lab.



Some seed was placed into mesh envelopes in cages that are normally used to grow out oysters.





Seed in a cage at one of the Barnstable sites.



Some seed was planted under nets in Cape Cod Bay.



Working at the deep water site is always a challenge.



Checking on seed in Barnstable that's been growing in Florida style mesh bags.



Grading seed that was grown in Florida-style mesh bags.



Handing over bottom nets that will be staked down over seed at the deep water site.

UPCOMING CLASS!

Fundamentals of Shellfish Farming: Practical Tools, Tips & Techniques

This 8 week course will cover the basics of shellfish aquaculture, emphasizing practical, no nonsense information. Students will be introduced to the subject of shellfish aquaculture, progressing from an introduction to shellfish hatchery & nursery production to field grow-out of oysters and clams. Safe shellfish handling and harvest practices to minimize Vibrio risk will be discussed. The course will also provide information on management of predators, pests and diseases, and on the basics of shellfish farm business management and permitting.

The staff of the Cape Cod Cooperative Extension and Woods Hole Sea Grant Marine will be teaching this course. Also included will be several guest speakers who do this for a living; they will emphasize tips, tricks and lessons learned.

The course begins on Thursday, March 22, 2018 and will run every Thursday night through May 10th. The class will be held at the Barnstable County Complex – Harborview Conference Room on Route 6A in Barnstable and will meet from 6:00 to 8:00 pm. Additional optional field trips will be offered to enrolled students (times and dates to be determined).

Cost for the 8 week course is \$150.00. Students may audit the course or opt to take it as a certification course. Certification will be issued by the Southeastern Massachusetts Aquaculture Center (SEMAC) Board of Directors to students with an exam score of 80% or better.

**Registration is first come first served and closes on March 1, 2018.
Payment must be included at the time of registration.**



TO REGISTER: Please email Chris St. Pierre at cstpierre@barnstablecounty.org with your name, mailing address, email address and phone number. Make out the check to "Barnstable County" in the amount of \$150.00 and mail to: Shellfish Class, c/o Chris St. Pierre, Cape Cod Cooperative Extension, PO Box 367, Barnstable, MA 02630.

QUESTIONS: If you have questions about the class please call or email Abigail Archer at 508-375-6702 or aarcher@barnstablecounty.org

“Spit and Chatter”- Growers’ Column

By Dan Howes

I first got a grant in Pleasant Bay, Orleans in 1994. I saw it as part of an exit strategy, not from fishing, but from groundfishing. I grew quahogs for quite a few years, and started trying oysters sometime around 2004. At the time, the nature of the inshore fisheries I was involved with allowed plenty of time for maintenance, and I became fully invested in the winter market, it was perfect.



As with anything that seems to work well, changes in regulations, along with more and more entrants began to take some of these options off the table, and I responded by expanding the grant and

planting more oysters, eventually eliminating quahogs altogether, they took too long, and took too much room. The most difficult part of this transition is the fact that nearly 40 years of a fishing mentality isn't something that can simply be turned off, and I sometimes, even now, feel as if there is a civil war going on in my mind. I have reached a

point where I genuinely don't want to go fishing anymore, and the mentality does fade with time.

January 9-10, 2018

38th Milford Aquaculture Seminar
Shelton, CT

<https://www.nefsc.noaa.gov/nefsc/Milford/mas.html>

Winter - Date To Be Determined
MA Aquaculture Association Annual Meeting
Woods Hole, MA

March 11-13, 2018

Seafood Expo North America
Boston Convention & Exhibition Center
<https://www.seafoodexpo.com/north-america/>

March 18-22, 2018

National Shellfisheries Association
Seattle, Washington
<http://www.shellfish.org/>

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