

SEMAC Tidings

Volume 4 Issue 1

Winter & Spring 2010-11

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SEMAC is an agency of
Barnstable County



SEMAC Budget Set at \$50k through December 2011

Update:

SEMAC submitted their budget proposal to MA DAR in February, 2010 requesting \$50K in funding. Board members identified several major issues confronting the shellfish culture industry in Southeastern Massachusetts. Shellfish farming, like many other industries in the region has been impacted by the recent economic climate and continued market pressure from other areas of the country. In addition to disease, fouling and predation remain serious impediments to industry profitability and growth. Shellfish diseases continue to be one of the greatest concerns and remain a very large problem in some areas, with continued losses to Dermo, MSX and QPX during recent seasons. Hard clam mortalities in areas within Wellfleet Harbor continue and further

testing has revealed low level reemergence of QPX as well as the appearance of neoplastic disease at higher than 'normal' levels. In response to the aforementioned concerns SEMAC requested the following budget categories: an aquaculture mini-grant program, shellfish disease monitoring, water quality monitoring, shellfish Research Farm Network, and support for the December 2010 NACE conference held in Plymouth, MA. SEMAC board members discussed the importance of the Research Farm Network and ongoing water quality monitoring which were both viewed as valuable programs that address specific industry issues. In April, 2010

SEMAC received a \$50K contract from MA DAR which ends December 31, 2011. \$45,000 was set aside in the following categories: \$15,000 to support an industry mini-grant program, \$13,250 for the shellfish Research Farm Network, \$13,000 for continued water quality monitoring which includes subscriptions to place real-time water quality data on the web, \$3,000 for disease testing, and \$750 for NACE support. The remaining \$5,000 was set aside for administration of the overall program. Programs using some of this funding have been ongoing from last year and an interim progress report was submitted to the MA DAR on August 5, 2010.



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Can We Measure the Oyster's Good Work?

Project Update:

Oysters and other shellfish have long been recognized for their ability to filter appreciable quantities of water and in the process clear many of the suspended particulates or seston. Field demonstrations of this seston removal ability have been difficult to establish though it remains a hot topic as shellfish production is an important component of coastal ecosystems. This along with the increasing concern with nutrient loading in

local coastal waters prompted SEMAC to set aside some funds to look at whether a feeding population of oysters can result in measurable improvement in water clarity. The experimental setup was

fairly simple, 200 market sized oysters (3 in.) were stocked in a 10 foot section of PVC pipe and placed just off bottom in a small tidal creek in Brewster. As the tide pushed water through the pipe and over the oysters measurements of chlorophyll and turbidity (and a number of other parameters) were recorded with YSI sondes attached to upstream and downstream ends of the pipe. Results showed the oyster population consistently reduced



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Heidi Clark joins SEMAC staff



SEMAC's newest member, Heidi Clark, assists with eelgrass restoration project.

Bill Burt announced his retirement last September which was a sad day for SEMAC staff and friends, who all appreciated his wealth of knowledge. Filling his void, SEMAC's most recent addition is Dr. Heidi Clark. Formerly of Woods Hole Group, Heidi is an environmental scientist with extensive experience in shellfish culture, coastal ecology, environmental assessment, and habitat restoration. She has over 15 years experience in environmental science and consulting, with projects ranging from environmental damage assessments to eel-

grass restoration to dune revegetation. Heidi has MFS and Ph.D. degrees from Yale University. In her new role as SEMAC's Technical Coordinator and CCCE & Woods Hole Sea Grant's Marine Resources Specialist, Heidi will assist with project design & analysis, technical report writing and work closely with our research farm participants. We have worked with Heidi on numerous projects in the past and she will be a great addition to our SEMAC program!

SEMAC Co-sponsors a Vibrio Workshop

Since the FDA threatened to require post harvest processing of gulf oysters harvested during the warmer summer months industry folks from all coasts have scrambled to get ahead of the issue. Back in June of 2010, SEMAC co-sponsored a workshop entitled *Vibrio Issues When Handling and Harvesting Shellfish* to help educate folks from all ends of the shellfish industry how the risks of Vibrio bacteria can be managed. The primary presentation was given by Robert Rheault, Executive Director of the East Coast Growers Association stressing the importance of keeping shellfish cool from harvest to table. Mike Hickey from MA DMF and staff from MA DPH were also on hand to offer additional information and comments. A video of Bob Rheault's presentation is available on the ECSGA website.



Oysters good work from page 1

the amount of chlorophyll present in the water by a mean of 28.6%, and turbidity by 22.3%. The experiment with live oysters was then followed with a control in which dried oyster shell cultch was used in the place of live oysters for comparison. This control setup resulted in no measurable differences in the water clarity measures of chlorophyll or turbidity. Though the results are small in scale we were able to show the oysters out there

were doing their job by providing their continuous ecosystem filtration service free of charge!



Josh setting up the Wellfleet YSI deployment

... "we realized the benefit of our cooperation and decided to formalize the situation."
- Steve Kirk, Falmouth grower

"Spit and Chatter" - Growers' Column submitted from Falmouth

An Update from Steve Kirk

During the winter of 2009/10 a few separate groups began navigating the permitting process to obtain shellfish leases in Falmouth. Early discussions were focused on permitting, culture methods, and marketing. This quickly evolved into

banding together to collectively buy gear and seed. We realized the benefit of our cooperation and decided to formalize the situation.

The Falmouth Shellfish Cooperative has been formed and is now comprised of three oyster farms all located in the waters of Buzzards Bay. They include the Quissett Point Oyster Company, Wood Neck Oyster Farm, and Woods Hole Oyster Company. The farms are located on the eastern side of Buzzards Bay and are extremely exposed. The leases are unique in that they are located in fairly deep water, averaging 15'. Access is an issue with farmers getting to the sites by boats that are tied up at the commercial pier

in Woods Hole. The grow-out method being used is off bottom culture with cages and ADPI bags. While some choose to work the gear on the deck of their boats others dive and inspect the gear while in the water.

The co-op has recently been approved for a seafood wholesale dealers license. In the near future Sippewissett Oysters should be available at local restaurants and at their facility located on the grounds

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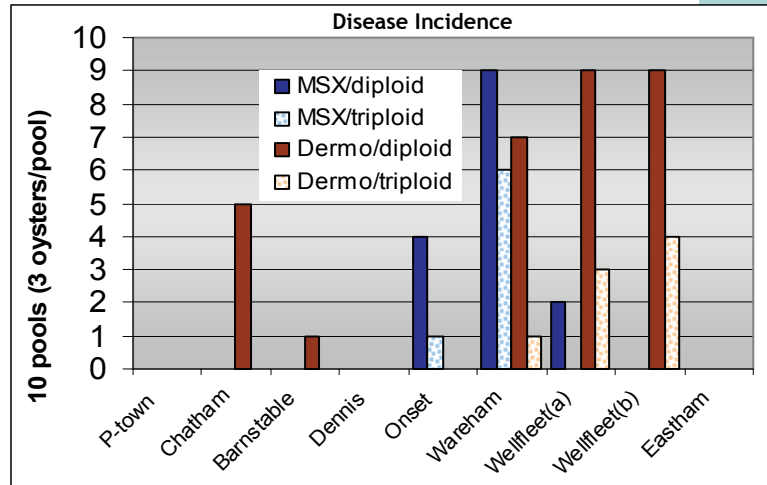
Matt Weeks and Eric Matzen of the Falmouth Shellfish Cooperative discuss their oyster harvest.
Photo by Daniel Cojanu of the Falmouth Enterprise

Tech Talk – project updates

By way of Diane Murphy

One of the primary projects funded through SEMAC remains the shellfish Research Farm Network which is entering its eighth year of industry-driven research experiments. The multi-year study of paired oyster diploid/triploid field trials will conclude this year. Final analysis of results will be reported and disseminated to the public. Preliminary results indicate differences in disease incidence between ploidys (see *Figures 1,2*). Plans for this year's RFN studies include field grow-out of razor clams (*Ensis directus*) as an alternative species for culture and comparative gear testing of the 'oyster-gro' system among the participating growers.

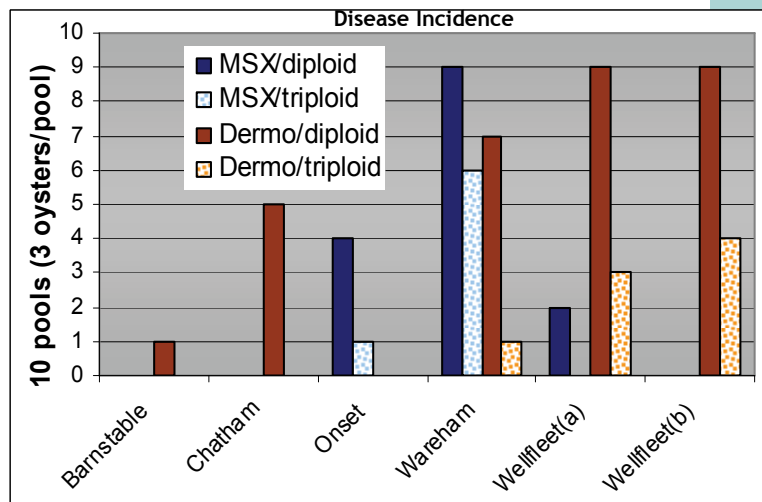
Water quality monitoring remains another top priority project and four WQ monitoring stations will be maintained. SEMAC will repeat last year's study which looked at the effects of oysters on chlorophyll and nitrogen in the water column. Shellfish growers express growing concerns about water conditions, especially changes in pH and ocean acidification. SEMAC's long-term YSI water monitoring can help signal any significant changes over time. During the quahog mortality issues in Wellfleet, one of the YSI instruments was relocated to the area of concern to record in-situ conditions to help understand potential factors contributing to the mortalities. In addition, Woods Hole Sea Grant and Cape Cod Cooperative Extension contributed substantial funds to help with further research. It was discovered that a neoplastic disease in hard clams played a significant role in the quahog mortalities.



t-Test: Paired Two Sample for Means		
	Dermo/diploid	Dermo/triploid
Mean	3.444	0.889
Variance	16.278	2.361
Observations	9	9
df	8	
P(T<=t) two-tail	0.0268	
	MSX/diploid	MSX/triploid
Mean	1.667	0.778
Variance	9.5	3.944
Observations	9	9
df	8	
P(T<=t) two-tail	0.0864	

Figure 1

Results from all nine sites including those negative for disease. Results show significantly higher mean incidence of Dermo in diploids than triploid oysters, and approaching significantly higher MSX in diploids..



t-Test: Paired Two Sample for Means		
	MSX/diploid	MSX/triploid
Mean	5	2.3333
Variance	13	10.3333
Observations	3	3
df	2	
P(T<=t) two-tail	0.0153	
	Dermo/diploid	Dermo/triploid
Mean	6.2	1.6
Variance	11.2	3.3
Observations	5	5
df	4	
P(T<=t) two-tail	0.0077	

Figure 2

If sites negative for disease are removed from analysis, both Dermo and MSX show significantly higher mean incidence in diploid oysters than in triploids.



...oyster being prepared for final measurements and condition index.

“...analysis of study sites positive for disease showed a statistically significant higher mean incidence of disease in diploid oysters than in triploids.”

Fundamentals of Shellfish Farming:

Practical Tools, Tips & Techniques

A Course Offered by the Southeastern MA Aquaculture Center,

Cape Cod Cooperative Extension & Woods Hole Sea Grant

Fall 2011

Dates and Times TBA



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 aquaculture to shellfish hatchery & nursery production to field grow-out of oysters and clams. Additionally, the course will include management of predators, pests and diseases, as well as providing basic information on business management and permitting.

Diane Murphy, the Fisheries & Aquaculture Specialist for Cape Cod Cooperative Extension and Woods Hole Sea Grant teams with Henry Lind, former Director of the Town of Eastham's Department of Natural Resources, Joshua Reitsma and Heidi Clark, Marine Program Specialists of Cape Cod Cooperative Extension and Woods Hole Sea Grant to offer this course, along with guest speakers from the aquaculture industry. Guest speakers will emphasize tips, tricks and lessons learned.

The previous 2010 course was held at the Barnstable County Farm Field Station of Cape Cod Cooperative Extension on Route 6A in Barnstable, and met from 6 to 8 pm. Additional optional field trips were offered to enrolled students and will be offered again with times and dates to be determined. Cost for the 8 week course is \$100.00. Students may audit the course or opt to take it as a certification course. Certification will be issued by the Southeastern Massachusetts Aquaculture Center Board of Directors to students with an exam score of 80% or better.

Registration is always first come, first served and closes when class is full. Payment must be included at the time of registration. If for some reason the course is cancelled a full refund of the course fee will be provided. Contact Diane Murphy at (508) 375-6953 or dmurphy@barnstablecounty.org for further info or a registration form.

'Spit and Chatter'...from page 2

of Coonamessett Farm in Hatchville. We decided to call them Sippewissett Oysters because of the geography and history of our location. It is a Wampanoag term that loosely translates as "at the little river." The shore-side area near our farms, including two marshes, is known by this name.

It is really wonderful to see the Town of Falmouth embrace the industry allowing the creation of sustainable jobs, local food production, and reaping the environmental benefits of shellfish aquaculture. The Falmouth Shellfish Cooperative looks forward to contributing to the growth of the industry in southeastern Massachusetts.



2011 Upcoming Events

March 27th-31st
NSA 103rd Annual Meeting
Baltimore, Maryland

April 1st
Massachusetts Aquaculture Centers' Meeting
UMASS Experiment Station, Waltham, MA

May 8th
Aquaculture Association of Canada
Quebec City, Quebec, Canada

June 6th-10th
World Aquaculture Society (WAS) meeting
Natal, Brazil
Information - www.was.org/

August 23rd-27th
14th Int'l Conference on Shellfish Restoration
Stirling, Scotland, UK

Fall 2011
Fundamentals of Shellfish Farming 8-week course
Barnstable, MA
Date/Time TBD



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