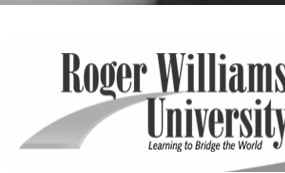


Improving Oyster Aquaculture in RI: Testing disease resistant strains

A proposal to Northeast SARE

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Dale Leavitt (RWU)

October 5, 2006
OSAA meeting
Coastal Institute, GSO





Northeast Sustainable Agriculture Research and Education

- SARE Outcome statement:
“Agriculture in the NE will be diversified and profitable, providing healthful products to its customers; it will be conducted by farmers who manage resources wisely, who are satisfied with their lifestyles, and have a positive influence on their communities and the environment”

Preparation of proposal to

Northeast Sustainable Agriculture Research and Education

- Goal of the proposal: “To stimulate the growth and diversification of the oyster aquaculture industry in Rhode Island by involving oyster farmers in research evaluating the performance of oyster disease-resistant strains in local growing conditions”

How will this research help you?

- The highest risk on oyster farms is disease (Dermo, JOD, MSX)
- Disease resistant strains are one of the few tools available to manage disease in oyster farms



*Haskin Shellfish Research Laboratory
MSX-resistant oysters*

Oyster disease resistant strains

CROSbreed	Delaware origin, selected for resistance to MSX since 1957, Dermo since 1992
DEBY	Delaware and Gulf of Mexico origin, selected for resistance to MSX and Dermo since 1991
NEH	<u>Long Island origin</u> , selected for resistance to MSX since 1960, resistance to Dermo since 1990
FMF	<u>Long Island origin</u> , selected for resistance to JOD

Testing disease resistance in oysters: Natural and experimental infections

An ongoing project funded by the RIAI

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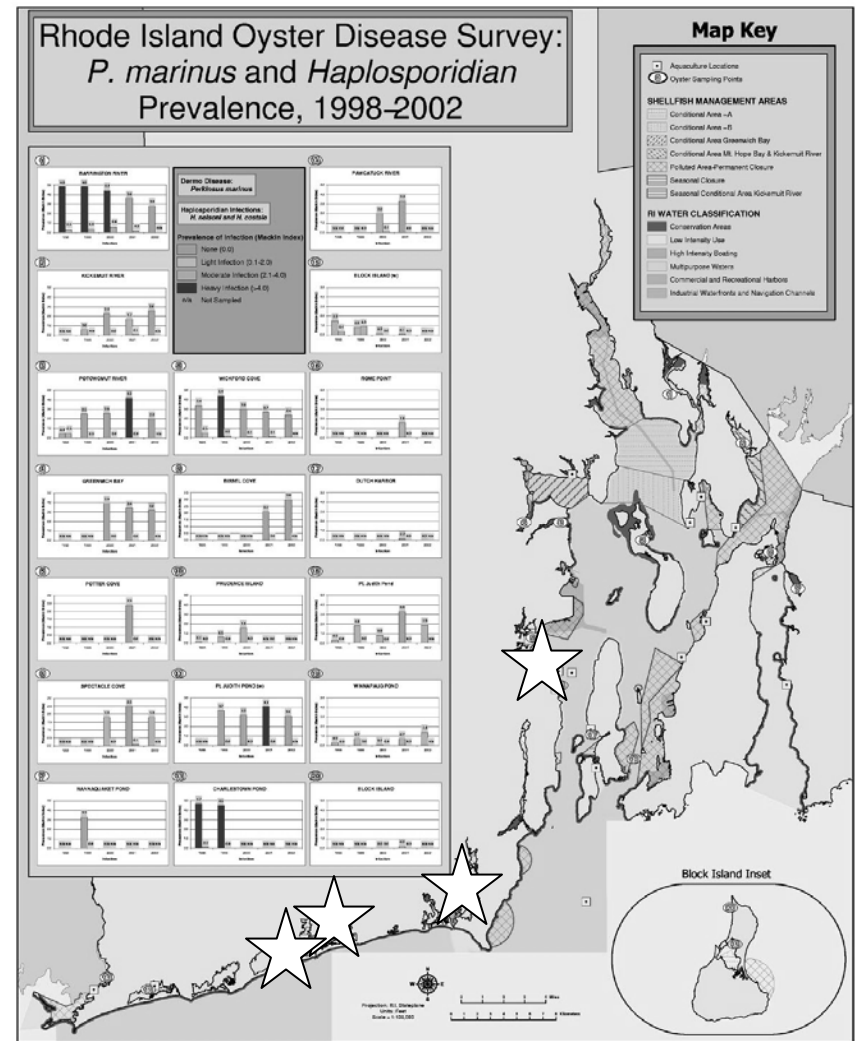


Rhode Island Aquaculture Initiative



Testing disease resistance in RI farms

- ☆ Strains tested: NEH, FMF, Green Hill Pond
- ☆ Field performance: 3 farms (Ninigret, Point Judith, Wickford)
- Laboratory performance: experimental infections



www.narrbay.org/static.htm

Rhode Island Aquaculture Initiative



Testing resistance in the lab: Time to 80% mortality after JOD challenge

	Size of oyster		
Line	< 1 mm	5 – 9 mm	22 – 27 mm
NEH	>48h (20°C)* 24h (25°C)	>43 days*	>13 weeks*
FMF	-	8 days	>13 weeks*
GHP	24h (20°C) 24h (25°C)	8 days	13 weeks

** The longer it takes to die, the more resistant those lines are*

Performance in Farms: Mortality (Spring 2006 - 9 months old)

	Location			
Strain	Lab	Farm1	Farm2	Farm3
FMF	5%	18%	8%	<i>25%</i>
NEH	5%	10%	3%	13%
GHP	4%	2%	<i>1%</i>	7%

What are we planning to do?

- Create a new line, a cross between the best performers (for growth and survival) from the RIAI testing.
- Test the performance of this line and the parental lines in Rhode Island farms



What do we need from you?

- Answer the following questions (see questionnaire)
 - Would this research be useful to you?
 - How can we make it more useful?
 - Are you willing to participate in the project?

- *If you are...*



What will be provided to you?

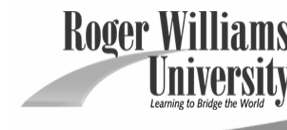
(if you want to actively participate in the project)

- Oyster seed from 3 lines:
 - NEH (disease resistant)
 - GHP (local strain)
 - GHP x NEH
- \$600 per farmer per year for 3 years (cost of materials, NOT durable equipment)



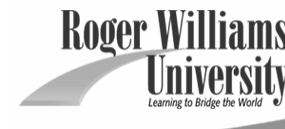
What will you do?

- Keep each of the lines in separate bags (at least 3 per strain) and keep them labeled
- Grow them as you usually do (but keep all of them in same general location, in similar conditions)
- Keep records on the general performance of each line
- Respond to a couple of surveys



What will we do?

- Sample for survival and growth (twice a year, spring and fall)
- Sample for disease (once a year)
- Regularly meet with you to:
 - Provide management recommendations and assistance
 - Provide information on disease levels and performance of each strain



Questions? Comments?

