

Reports

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Testing a New Approach for Floating Cultivation of Oysters on the Seaside

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HASP # VA-1197 SS

farm raised shellfish

Final Report Statement

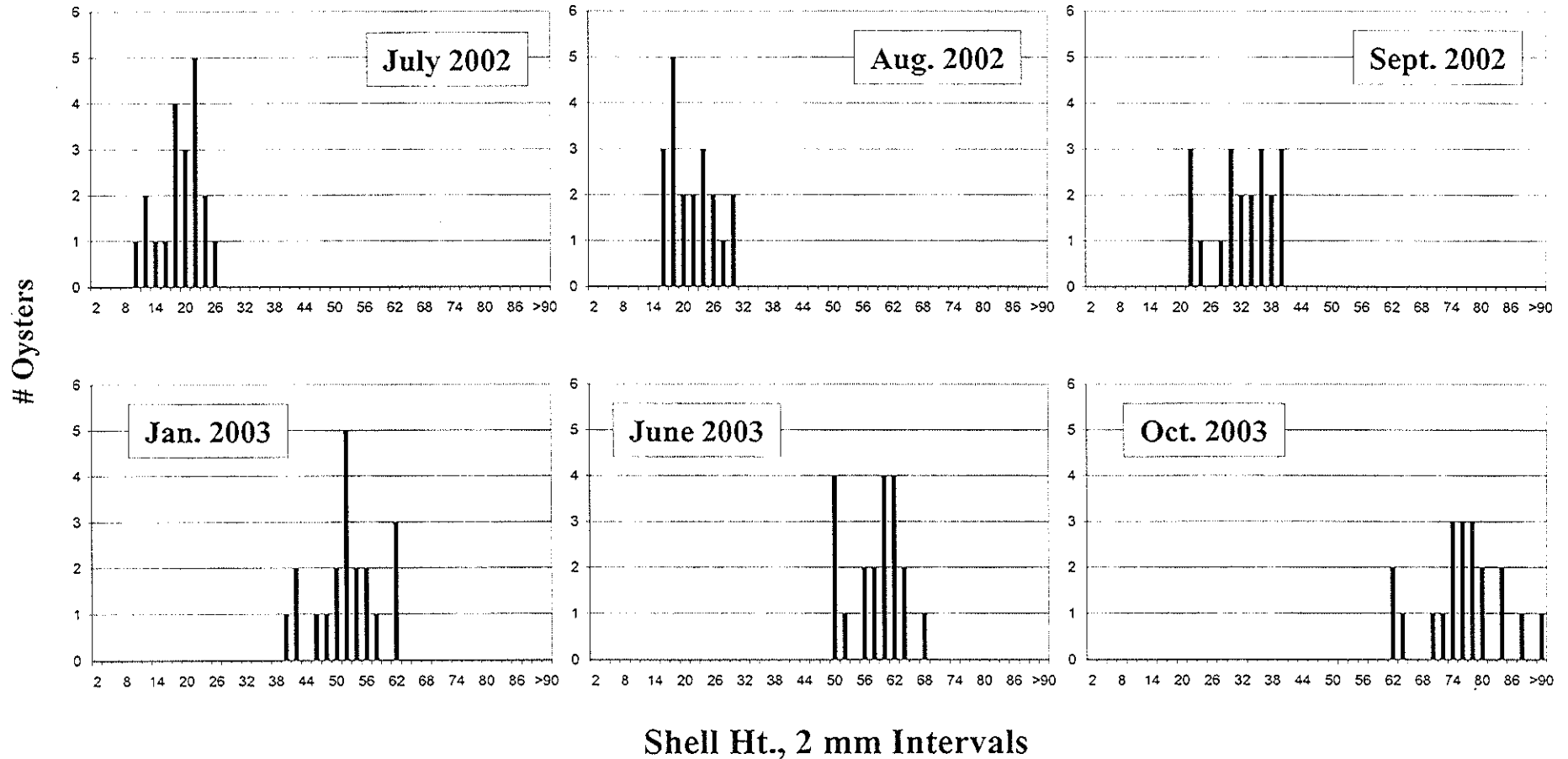
Testing a new approach for floating cultivation of oysters on the Seaside
FRGP# 2001-12

1. The purpose of this project was to evaluate the use of a floating bag method of oyster cultivation on the Seaside of Va. The use of a disease resistant seed stock. The use of a strict protocol, which involved aggressive culling and, removal of slower growing animals early on in the grow-out phase.
2. The use of the Fukui floating bag method has proven to be a excellent alternative to traditional floating culture. As the stocking densities are much lower, more room is required than in Taylor Floats. Bio-fouling was very limited in the early stages, by simply floating down the racks, and flipping the bags with two boat hooks on a weekly basis. However, as the animals became larger, and the bags sank farther in the water this was not a simple task. Also, by the bags floating lower in the water column, it was at an ideal strike zone. Now to flip the bags it became necessary to put on waders and get into the water. This proved to be very difficult on the deep muddy bottom.
3. The DEBY strain oysters seemed to as well or possibly a little better than native stocks used previously. By using only the fastest growing animals, and by low stocking densities, During the Fall and winter harvest of 2003, up to 60% animals per bag were of market size.
4. With the use of the automatic grader, culling and sizing of the animals was easily accomplished. the tumbling action of the grader helped to prune the shells, producing a nicely cupped product. Although the cost of the machine is considerable, this is greatly out-weighted by the tremendous labor savings, and product appearance.

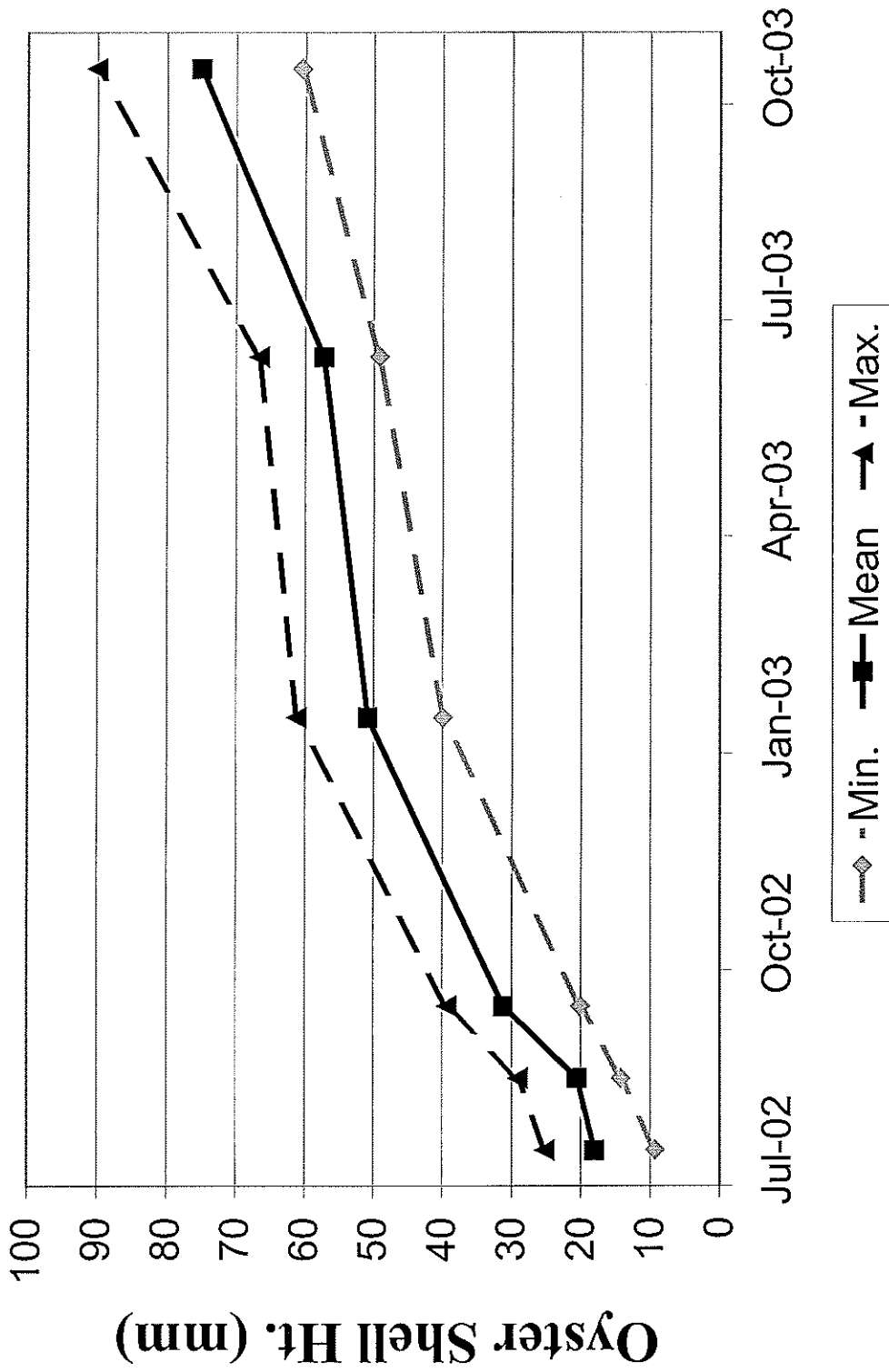
Summary:

I feel that this method of grow-out deserves more study. Although this method requires more space to grow the same amount, as compared to Taylor floats, it appears the percentage of market oysters it produces is greater. This system would be well suited to areas having a firm bottom, where working in waders would be easily accomplished. The system has now been removed and relocated to Saxis, Va. on a sand bottom. The results are not available as yet. The automatic grader has been a complete success, it has proven indispensable for the grading of seed oysters. I have designed another set of sieves that will grade up to market size animals. I have provided three different growers with the specifications and material list to build this machine.

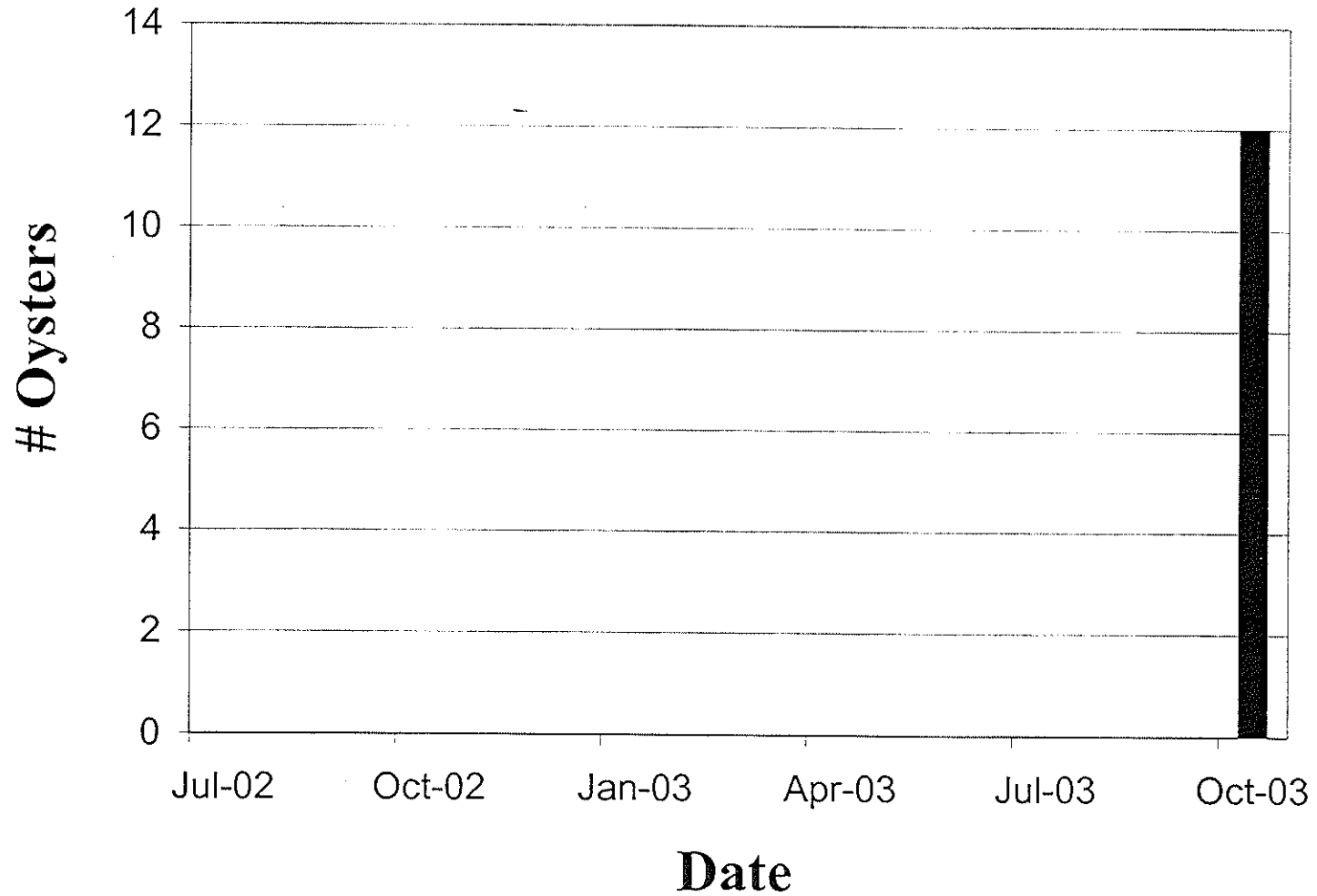
Oyster Size Frequency Distribution During the Course of the Study



Oyster Growth



“Markets” (>76 mm) per 20 Oysters



Virginia Institute of Marine Science Shellfish Pathology Report

Reference Case No. 1071

16 February 2005

Prepared for: Mr. Jeff Hammer
Accomac Aqua Farms
Accomac, VA 23301

History:

A sample of 25 cultured DEBY strain *Crassostrea virginica* (55.1-97.6 mm in shell height) was collected from Folly Creek on 20 November 2002 and obtained from Stephanie Bonniwell on 2 December 2002.

Examination methods:

Oysters were processed the morning after arrival. Shell height was measured, and animals were then shucked, with tissues being examined for gross signs of pathology. Whole tissues were fixed in Davidson's fixative for 48 hours, and rectal tissues were cultured in fluid thioglycollate medium (RFTM) for *Perkinsus* spp. (Dermo) diagnosis. Transverse sections of Davidson's-preserved tissues (approximately 5 mm thick) containing digestive gland, stomach, gonad, gill, and mantle tissues were cut and processed using standard histological techniques. They were embedded in paraffin, sectioned at 6 µm; stained with hematoxylin and eosin, and examined using light microscopy. The entire section of oyster tissue was evaluated for the presence of *P. marinus*, *Haplosporidium nelsoni* (MSX), *H. costale* (SSO), and any other signs of pathology or parasitism. The intensity of infection by each of these parasites was rated "None," "Rare," "Light," "Moderate," or "Heavy." Thioglycollate cultures for *Perkinsus* spp. were also examined microscopically and rated similarly.

Results:

Gross macroscopic observations:

No gross signs of pathology were noted.

Histological examinations:

Neither *H. nelsoni* nor *P. marinus* was observed.

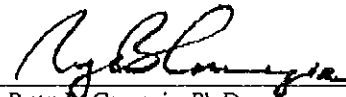
Sample	<i>H. nelsoni</i>			<i>P. marinus</i>		
	# inf/# exam	Prevalence	Intensity H-M-L-R	# inf/# exam	Prevalence	Intensity H-M-L-R
#1071	0/25	0%	0-0-0-0	Histo: 0/25 RFTM: 0/25	0%	0-0-0-0

Sphenophrya-like ciliates were found in 10/25 oysters, *Nematopsis* sp. in 8/25, and viral gametocytic hypertrophy in one. These parasites/conditions are common in oysters from Chesapeake Bay, and not cause for concern.

Comments:

Records of this screening will be maintained at our laboratory at VIMS should they be needed in the future.

Pathologist:



Ryan D. Carnegie, Ph.D.
Assistant Research Scientist

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Specifications and construction data for Oyster grader

This tumbler- grader is built all of 5052 marine grade aluminum.

The frame dimensions are, 54" wide 117" long 54" high

All of the framing is 2"x4" square tubing, with a wall thickness of .090

The cylinder is made up three sections, each section being 36" long by approx. 20" diameter. The three sections are then welded together to form a section 9' long. I had a machine shop punch the holes in the flat sheet, then had a sheet metal shop roll the punched sheets into a cylinder, then I welded the edges together. I am using hole sizes as follows, .750" 1.125" 1.750" With this arrangement you get four sizes of animals at each sieving, the fourth size comes out the end of the cylinder, about 75% of this size are market size.

The cylinder sits on four 6" diameter rubber wheels, with bronze bushings, purchased from Graingers.

The power to rotate is supplied by a hydraulic motor and pump. The motor is a 5 H.P. Honda. The pump is a 16 GPM. The hydraulic motor is a prince 1001-C168. Northern Hydraulics

An adjustable flow control is installed to allow varying the speed at which the tumbler turns. An 8" pneumatic tire was machined to fit the shaft of the hydraulic motor; this is in contact with the cylinder, to provide rotation.

A hopper was fabricated to hold one bushel .

The catch chute is made from .125 sheet.

One man easily removes the whole cylinder, so a different cylinder can be installed, if you wanted to size clams. The whole rig can be put on a boat trailer and moved to site, or this fits aboard my boat nicely. This has been used through out the eastern shore; it's hard to keep up with it sometimes. I will be glad to assist with any additional information that anyone needs.

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