

Virginia Shellfish Aquaculture

Situation and Outlook Report

Results of 2007 Virginia Shellfish Aquaculture

Crop Reporting Survey



Thomas J. Murray, Marine Business Specialist
Michael J. Oesterling, Aquaculture Specialist

Virginia Sea Grant Marine Extension Program
Virginia Institute of Marine Science
May 2008

VSG-08-02
VIMS Marine Resource Report No. 2008-2

Additional copies of this publication are available from Virginia Sea Grant, at:

Sea Grant Communications
Virginia Institute of Marine Science
P.O. Box 1346
Gloucester Point, VA 23062
804/684-7170
vsgpubs@vims.edu
www.vims.edu/adv/



This work is a result of research sponsored in part by NOAA Office of Sea Grant,
U.S. Department of Commerce, under Grant No. NA96RG0025 to the
Virginia Sea Grant Program.

Virginia Shellfish Aquaculture

Situation and Outlook Report

Results of 2007 Virginia Shellfish Aquaculture Crop Reporting Survey

Background

Continued growth of the shellfish aquaculture industry in Virginia has added significant value to the State's seafood marketplace. Today, watermen continue to harvest both hard clams and oysters from the State's public resources, albeit at diminished rates. At the same time, Virginia's watermen-farmers are providing growing quantities of additional quality shellfish to consumers. Following the lead of the hard clam industry, in recent years, there has begun a significant transition to intensive aquaculture of native oysters. The once extensive oyster planting has disappeared primarily as a result of endemic oyster diseases and increasing wildlife predation of seed oysters. In its place is an emerging aquaculture sector betting on improved culture techniques and disease resistant oyster seed.

While these trends are widely acknowledged, there has been no consistent reporting of production and economic trends in Virginia's shellfish aquaculture industry. Periodic assessments are necessary to inform growers and related interests about the actual status and trends in the industry. The intent of this survey is to continue annual assessments with which to gauge growth and inputs in Virginia's shellfish aquaculture industry. This report is based upon an industry survey completed during the first quarter of 2008.

Methodology

Survey

A mail survey was developed to collect information from Virginia clam and oyster growers known to be active in the industry. A preliminary version of the survey instrument was pilot tested and revised based upon the field testing (Appendix 1). Thirty-three complete useable surveys were returned including 21 clam growers and 23 oyster growers. In discussions with industry, it is felt that the firms responding represent over 90% of the total production of Virginia's aquaculture of market size oysters and clams during 2007.

For confidentiality reasons, the information collected is aggregated and the total represents both the eastern and western shores of Virginia.

Summary of Findings

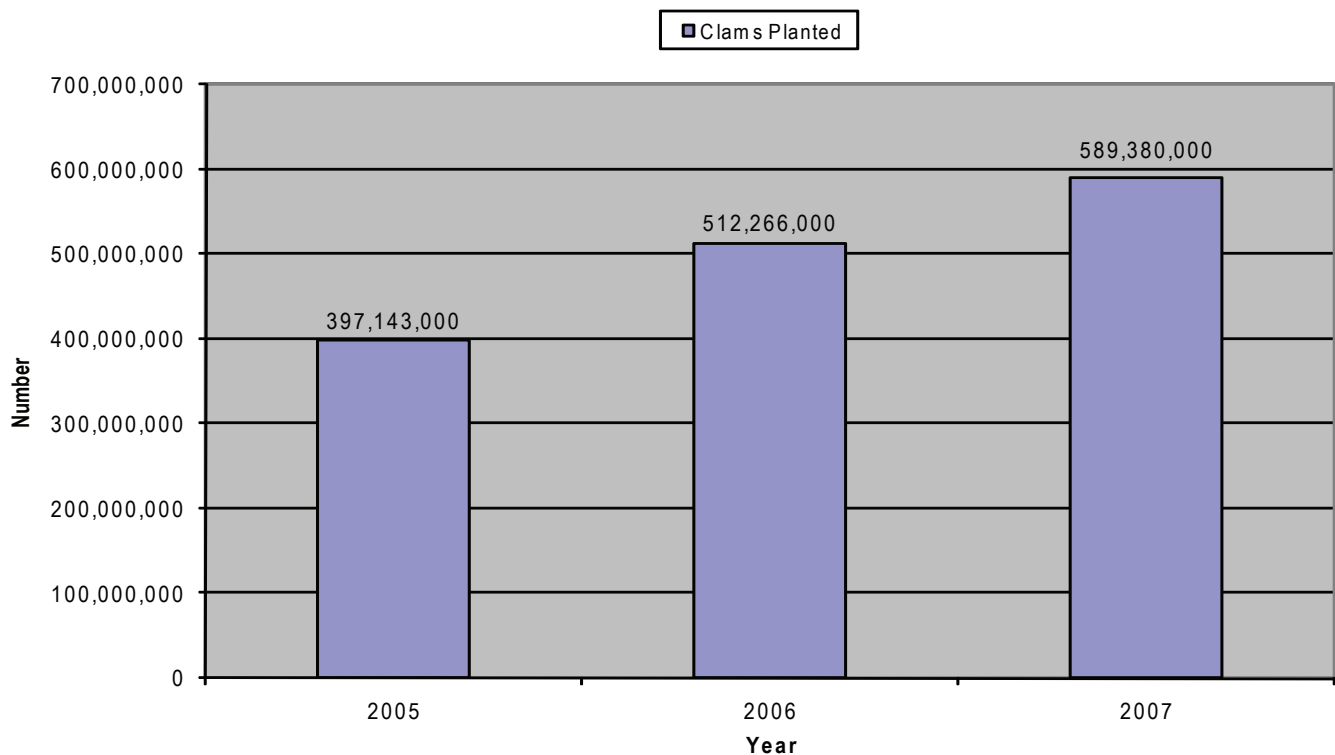
*Virginia Clam (*Mercenaria mercenaria*) Aquaculture 2005-2007*

The aquaculture of hard clams continues to expand in Virginia. Based upon previous economic assessments compiled by the authors, Virginia's clam farms lead the nation in the culture of hard clams. The growth continues in this sector as evidenced by the recent survey.

As depicted in Figure 1, clam growers reported a significant increase in seed plantings during the most recent year. The firms reporting indicated that during 2007 they had increased plantings by over 77 million clams (15%) compared to 2006. The outlook for 2008 was incomplete at the time of survey; however those reporting suggest the likelihood of a further increase in their seed planting of 5-10% during 2008.¹

¹Several large growers indicated at the time of the survey that their 2008 planting intentions were not finalized. If those firms repeated their 2007 plantings during 2008, the outlook suggests, an added increase of 9 % for Virginia's industry overall during 2008 to an estimated 645 million seed clams planted.

Figure 1: Number of Hard Clams Planted in Virginia (2005-2007)

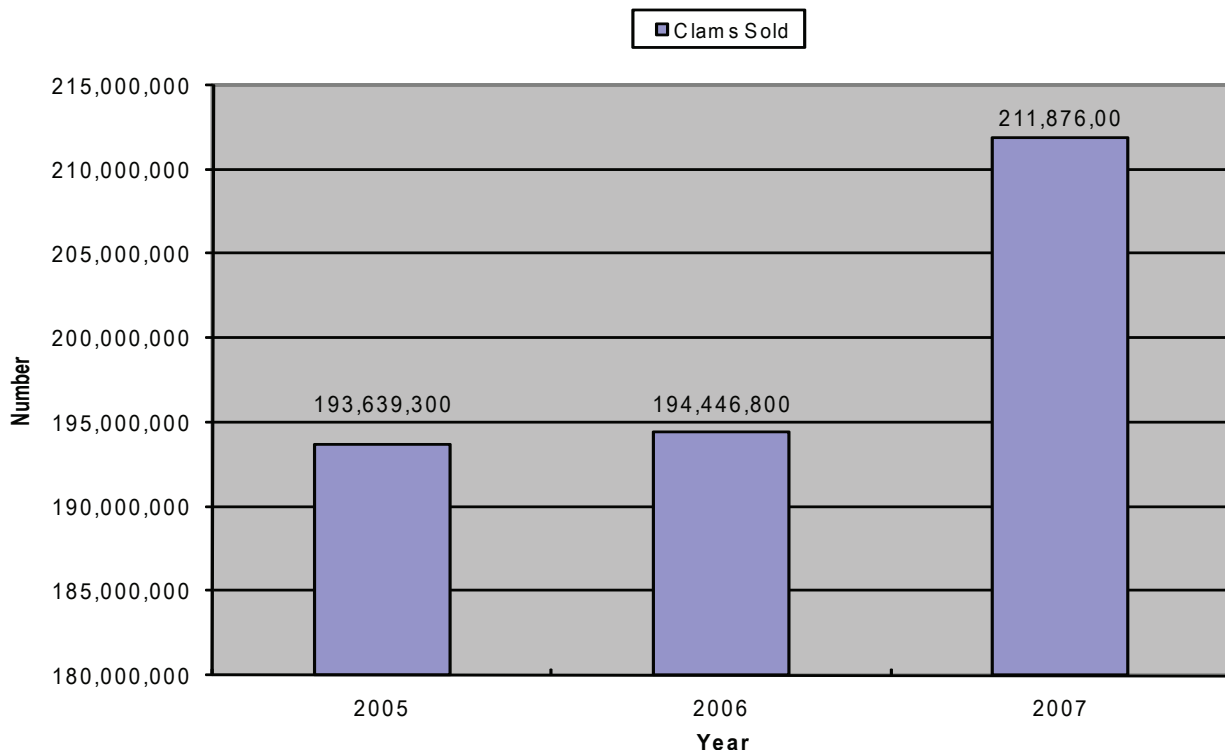


Clam Sales and Prices

The 2007 crop reporting survey provides additional details and information from growers, which reflected a continuing increase (9%) in the total number of Vir-

ginia market clams sold between 2006 and the end of 2007. During 2007 it is estimated that Virginia's total farm output rose to an estimated 211.9 million "market" clams, as shown in Figure 2 below.

Figure 2: Number of Hard Clams Sold in Virginia (2005-2007)



Perhaps most significant for the future, is the estimated 46% growth in production of clam seed detailed in Figure 3. This has accompanied the expansion of the industry's hatchery infrastructure, with an estimated 95% of the seed produced being planted in Virginia. The reported average price of clam seed was the same

in 2007 as 2006 and is projected by growers to remain the same in 2008.²

Figure 4 displays the survey findings regarding relative prices received for market clams. The weighted average price reported per market clam at

Figure 3: Amount of Clam Seed Sold by Virginia Hatcheries (2005-2007)

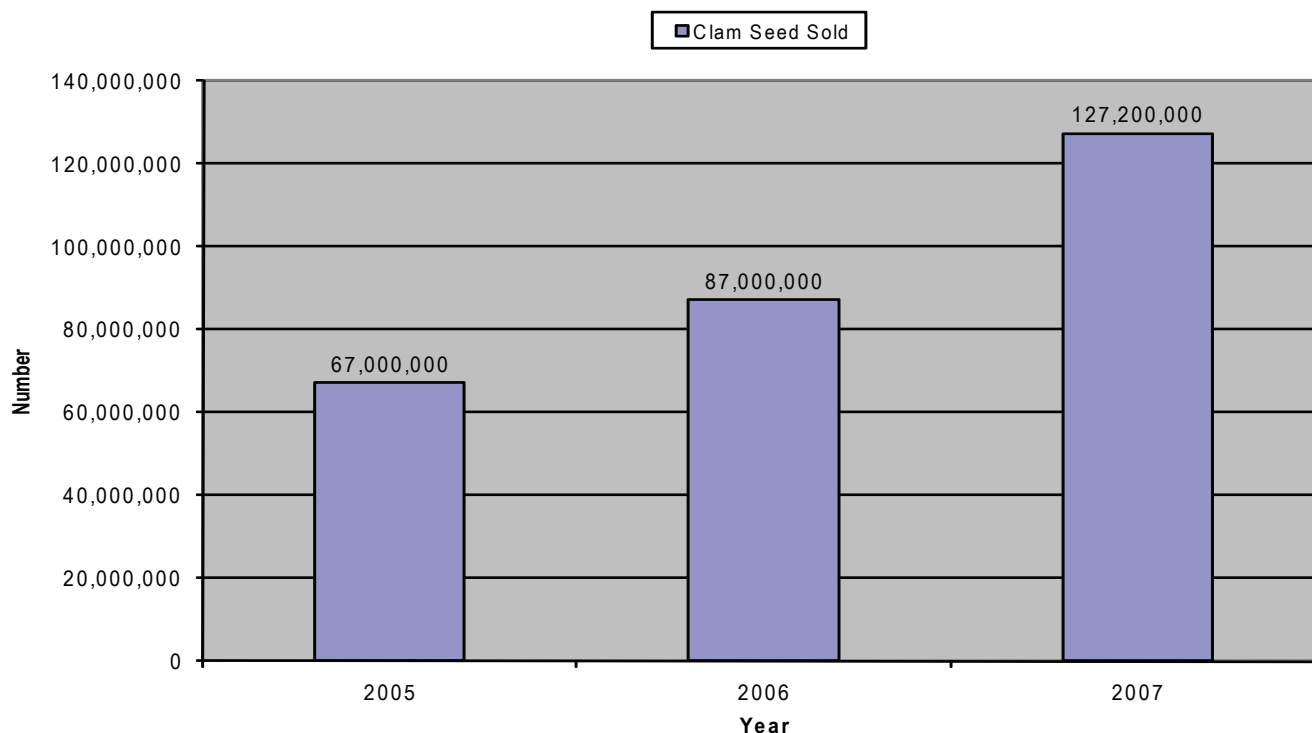
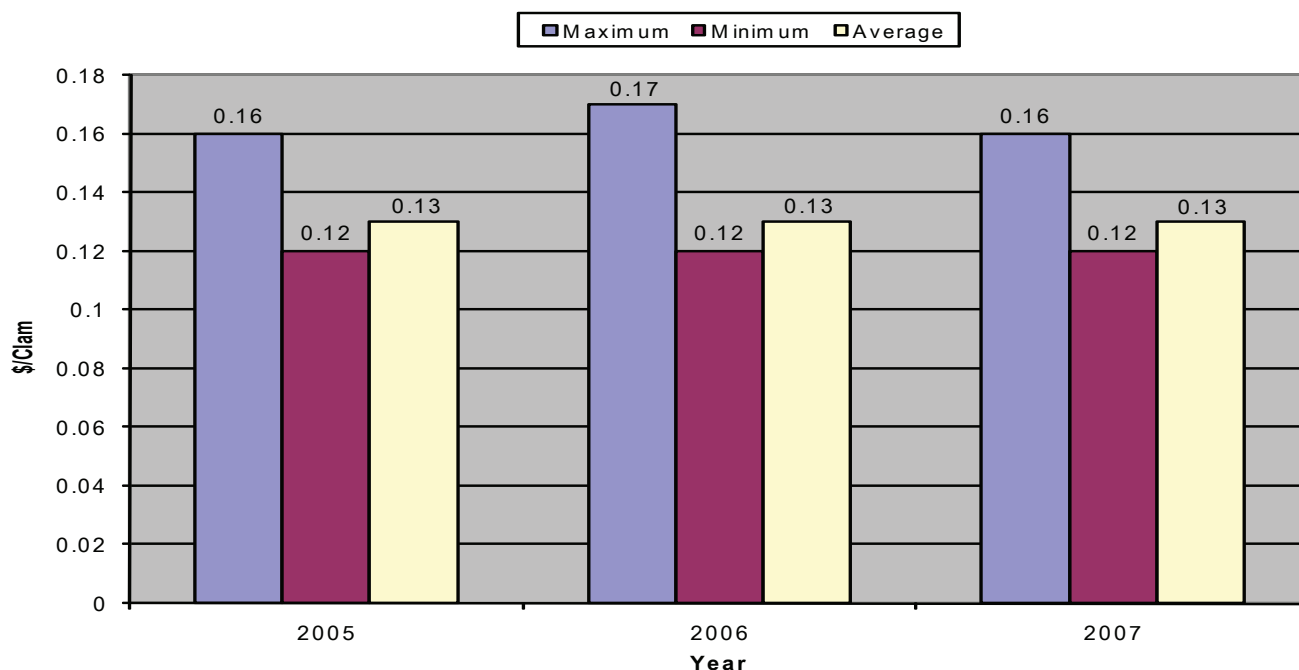


Figure 4: Clam Prices Reported By Virginia Growers (2005-2007)



² The price of seed depends upon size but the modal price reported was \$.02 per seed during 2007. The modal estimate for seed cost in 2008 is \$.03 per seed.

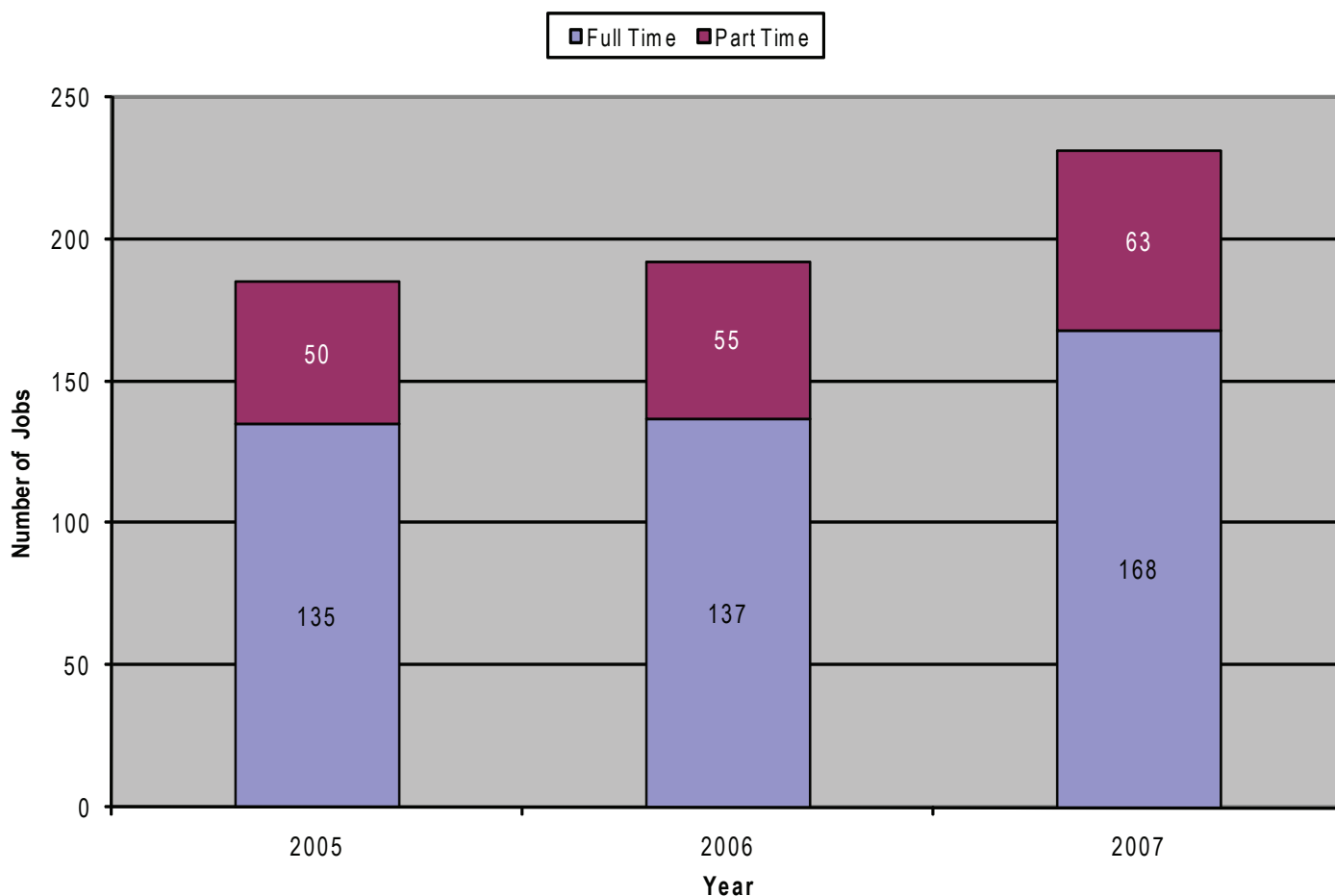
the farm gate was \$0.13 during 2007 essentially at the same level overall as 2006.³ According to the growers over 90% of all market size clams grown in Virginia continued to be shipped to out-of-state buyers.

Also, shown in Figure 5, expansion at the farm level has entailed an increasing employment of both full time (+22.6 %) and part time (+14%) personnel during 2007.

Virginia Oyster (Crassostrea virginica) Aquaculture 2005-2007

The oyster industry continues to evolve from the traditional extensive planting of “shell on bottom” to more intensive, contained, aquaculture utilizing cages, racks, floats and the like.⁴ As is depicted

Figure 5: Virginia Clam Farm Employment (2005-2007)



³Smaller niche growers, with production and sales of less than 50,000 clams reported average prices as high as \$0.30. Fourteen cents per clam was the modal price to the grower. It should be pointed out that market level for most growers is equivalent to farm gate prices. Some smaller growers market product directly at the retail level.

⁴Historically the most common oyster “culture” technique in Virginia was the transplanting of wild harvested seed to leased growing grounds. Prior to the onslaught of diseases, the grower paid little attention to the grounds between the time seed was planted and the time mature oysters were harvested, some 2 or 3 years later. Today there is little such culture practiced and the results here do not include information on such oyster planting. The results here represent the use of intensive aquaculture practices adopted as a result of increased oyster disease and predation using hatchery produced seed.

in Figures 6 and 7, the growers surveyed showed continued growth from 2005 through 2007. The near tripling of oyster plantings, which occurred from 2005 through 2006, tapered during 2007. One

reason cited for the diminished rate of expansion is the shortage of viable oyster seed from existing hatcheries. If the overall grower expectations gathered through this survey materialize, 2008

Figure 6: Number of Oysters Planted by Virginia Aquaculturists (2005-2007)

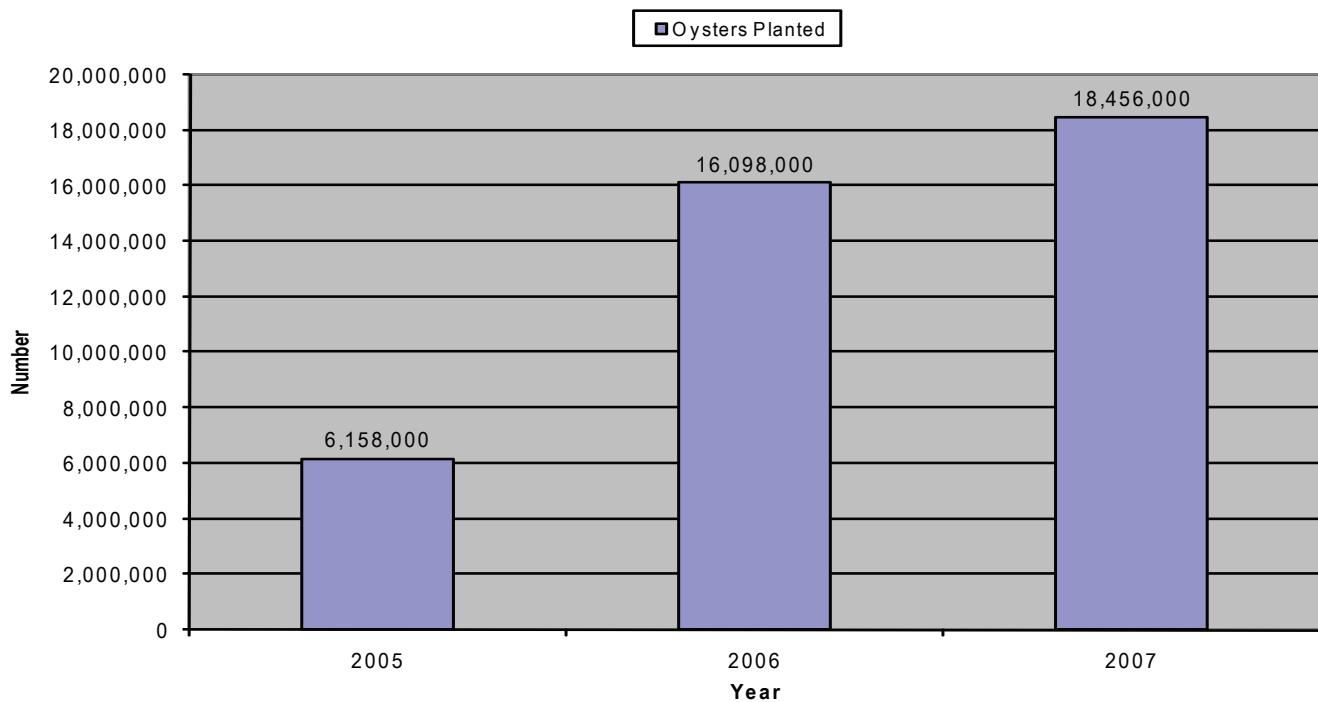
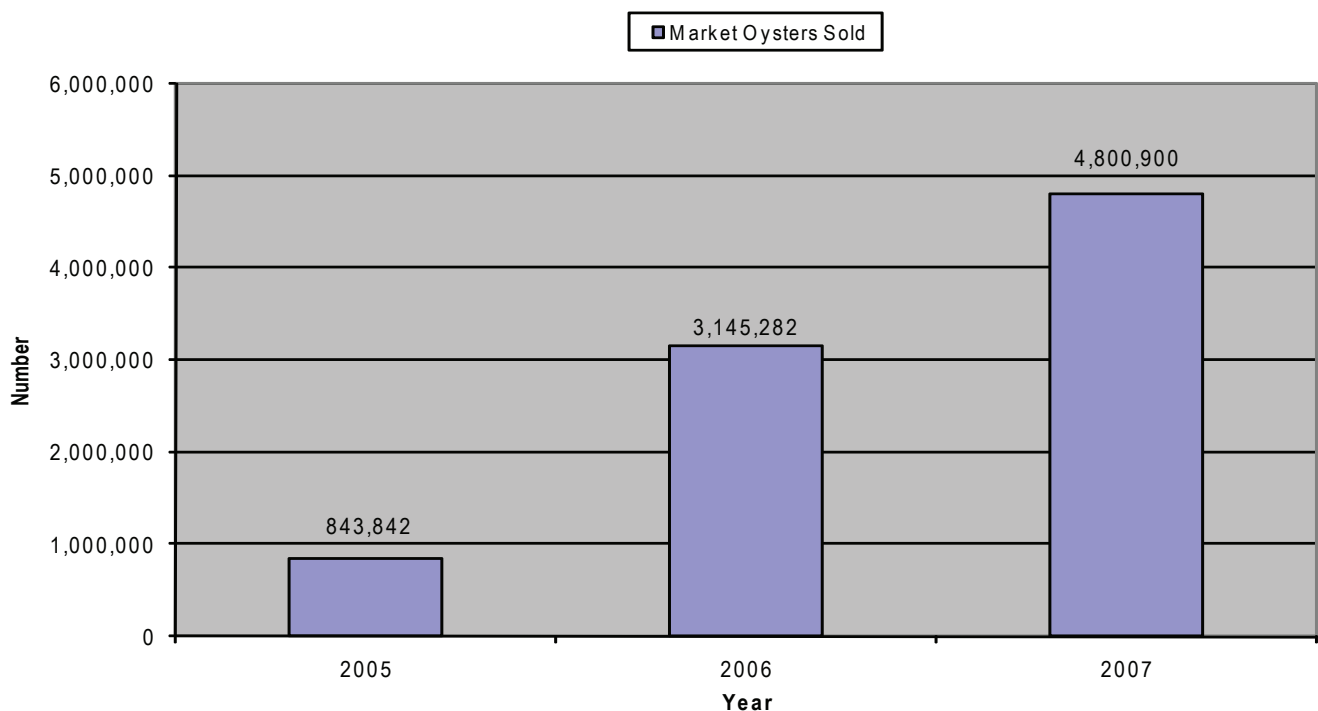


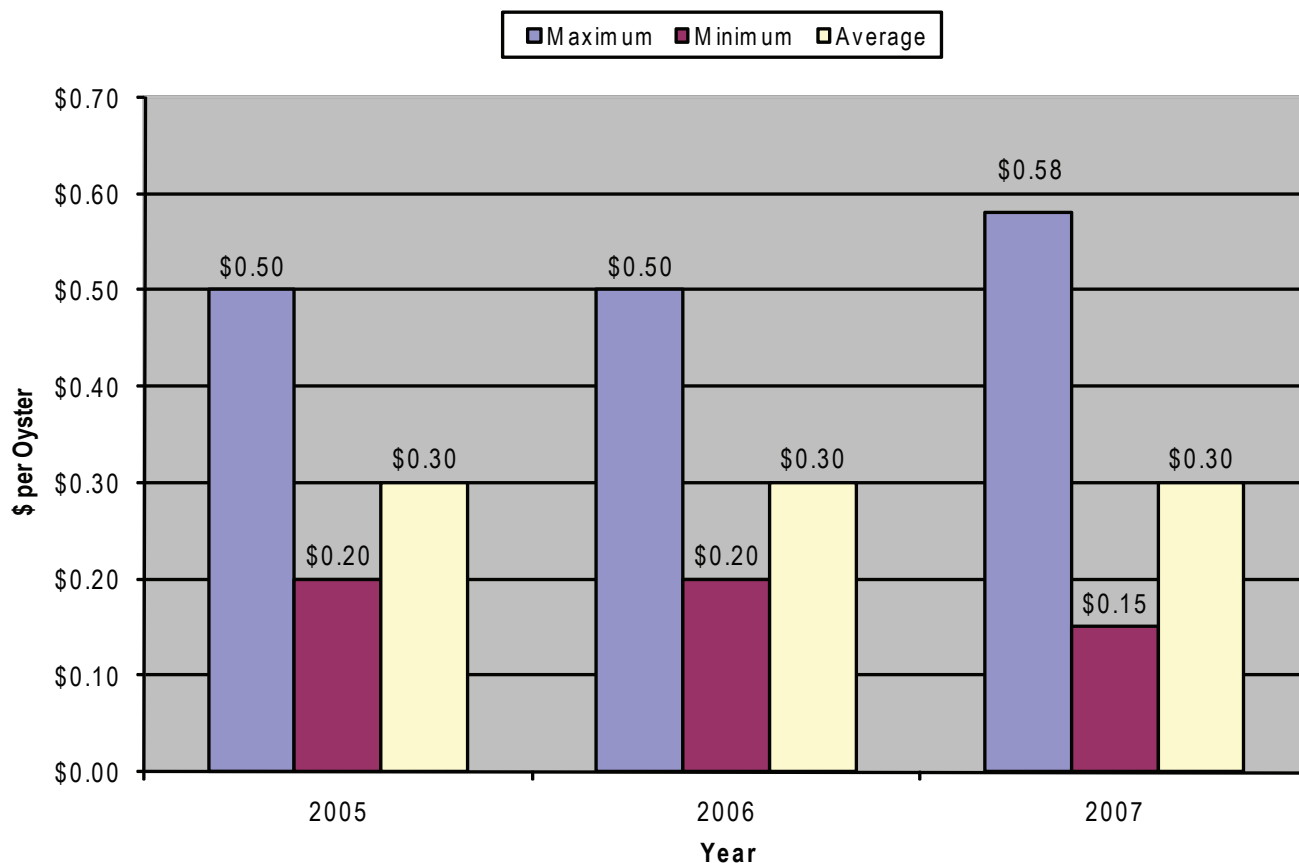
Figure 7: Number of Aquacultured Market Oysters Sold by Virginia Growers (2005-2007)



will see nearly a 33% increase in oysters planted (25,000,000) by Virginia oyster growers. The growth in oysters sold by farmers depicted in Figure 7 tracks the lagged increase in oyster plantings and demonstrates an almost six fold increase in farmed oyster sales by Virginia growers between 2005 and the end of 2007. Growers expect market oyster sales to reach 7.3 million during 2008.

Oyster prices were reported without detail as to market segment; i.e. primary wholesale, secondary wholesale, retail, etc. The data in Figure 8 show stability in the average prices received for cultured oysters over the three-year period at the same time volumes of sales have expanded.⁵

Figure 8: Average Oyster Market Prices for Virginia Aquacultured Oysters (2005-2007)

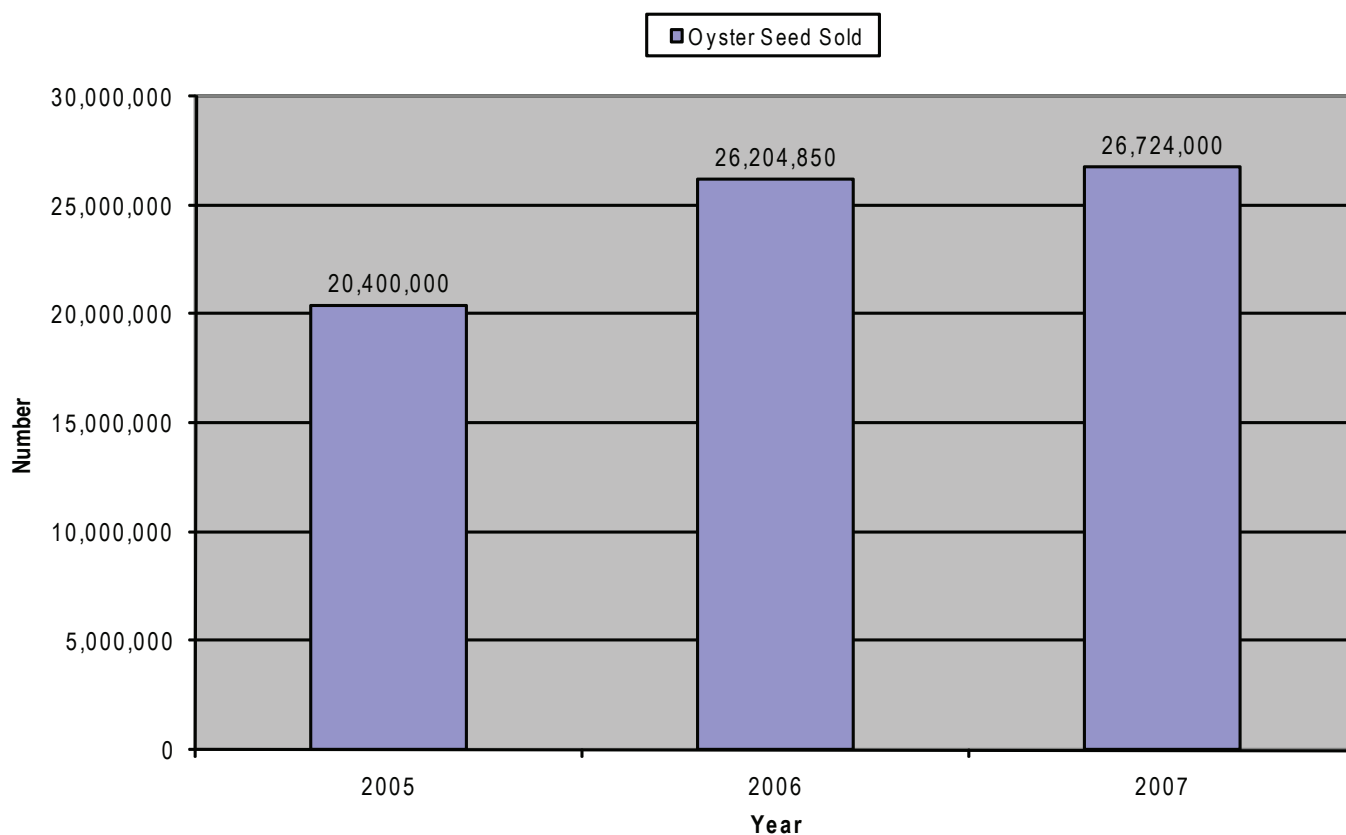


⁵ During 2007 the modal price reported was \$0.35 and the median price was \$0.28 per oyster.

As depicted in Figure 9, accompanying the expansion in plantings and ultimate marketing levels, Virginia industry has continued to expand its hatchery capabilities reportedly producing 26.7 million seed oysters for sale or own planting during 2007. Eighty-four percent of the seed planted by Virginia growers was purchased from a hatchery. The growers surveyed project an additional 14% increase in oyster seed production during 2008 to an estimated 30.5 million.

This forecast derives directly from the continued growth in aquaculture of oysters in Virginia as virtually all of the seed produced is either planted by the hatchery owners themselves in their aquaculture operations or sold to other Virginia oyster growers. This vertically integrated system with eventual sales to many out-of-state consumers adds important economic development to local coastal communities.

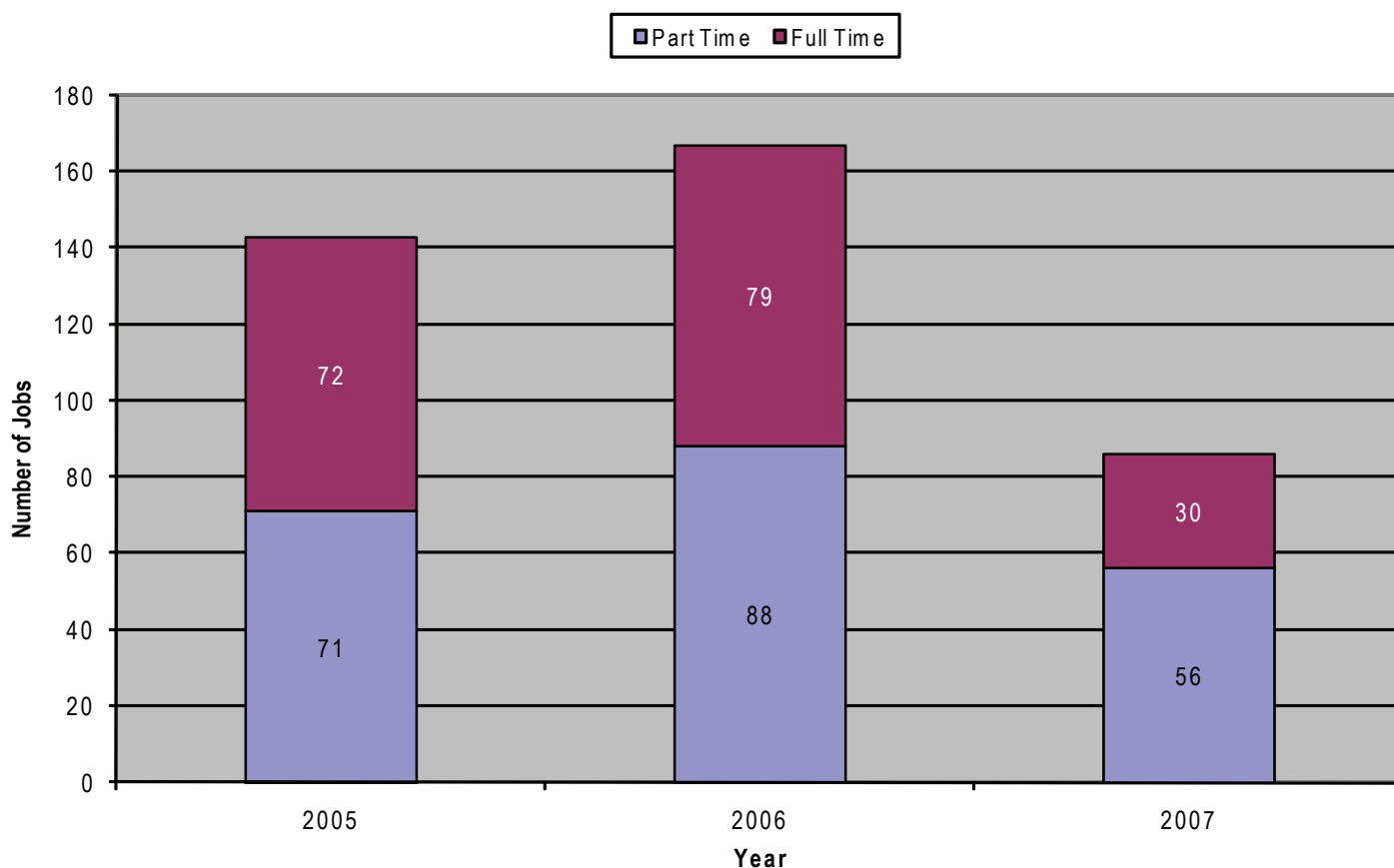
Figure 9: Oyster Seed Sold by Virginia Hatcheries (2005-2007)



Finally, as shown in Figure 10, as opposed to the growth in other indicators of Virginia's oyster aquaculture industry employment, both full and part time, reportedly declined over the period. Some speculate that increased productivity and learned efficiencies have improved the "labor to oyster" ratio. Overall employment growth is projected by growers with expectations for 2008 showing increase in full-time employees to 34 and part-time to 61. In

actuality the difficulty in estimating the amount of time and labor associated with relatively small scale aquaculture conducted in conjunction with other business lines makes the estimates of oyster culture labor problematic at this point in industry development. In view of this the trends in these employment figures should be not overly interpreted.

Figure 10: Employment in Virginia Oyster Aquaculture Sector (2005-2007)



Appendix 1

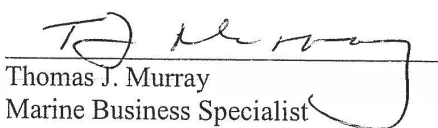
January 22, 2008

Dear Shellfish Grower:

As you know there is no consistent reporting of production and economic trends in the shellfish aquaculture industry. From time to time the U.S.D.A. and others have conducted surveys, but they have never done so for shellfish aquaculture on a consistent long-term basis as they have for most traditional farm crops. They have no plans to do so.

With your help, Virginia's past two annual surveys have shown how useful timely information is for the shellfish aquaculture industry. Such information is important in many different ways. One of the most vital reasons is to understand how important Virginia's growing aquaculture business is to the economy; and, in turn, how important clean water, reasonable land use and tax policies, access to financial capital and the like, are to shellfish growers.

We are writing to you because your business is one part of this important, expanding and previously little understood economic base. If you will join others in providing the annual information requested below, we believe that it will be a valuable piece of information for you, the shellfish industry and the Commonwealth. Would you please take a few minutes to complete the following survey tables using your best estimates? ***All information provided will be held in the strictest confidence and used only when combined with all of those providing information on their individual operations.*** We believe you and a lot of others will be surprised and impressed when we compile the results. It can only happen with your help. If you have questions or would like to discuss, please contact me as noted below. ***Please return the survey in the enclosed postage paid envelope or fax to the number noted below by February 28, 2008.***



Thomas J. Murray
Marine Business Specialist



Michael J. Oesterling
Aquaculture Specialist

Virginia Shellfish Grower Situation and Outlook Survey. Please complete the survey and
return by February 28, 2008

**Virginia Shellfish Aquaculture Crop Reporting Survey 2007-2008
 (History and Outlook)**

Table 1. Commercial <u>Clam</u> Aquaculture Situation and Outlook Survey			
	2007	2008 Estimate	Comments or Explanatory Notes
# leases			
# acres leased			
# clams planted			
% seed from own hatchery			
% seed purchased			
Average price of seed purchased			
# seed sold			
% seed sold out-of-state			
Average price of seed sold			
# market (non-seed) sold			
% markets sold out-of-state			
Average price per market clam			
% sales out-of-state			
# full-time help			
# part-time help			

Virginia Shellfish Grower Situation and Outlook Survey. Please complete the survey and
return by February 28, 2008

Table 2. Commercial <u>Oyster</u> Aquaculture Situation and Outlook Survey			
	2007	2008 Estimate	Comments or Explanatory Notes
# leases			
# acres leased			
# oysters planted			
% seed from own hatchery			
% seed purchased			
Average price of seed purchased			
# seed sold			
% seed sold out-of-state			
Average price of seed sold			
# market (non-seed) sold			
% markets sold out-of-state			
Average price per market oyster			
% sales out-of-state			
# full-time help			
# part-time help			

Would you like to receive a copy of the overall report when completed?

Yes _____ No _____

Please provide any comments on the shellfish aquaculture industry situation:

Name (optional): _____

Address: _____

Telephone: _____ Email: _____

Return by February 28, 2008 to:

Tom Murray

Virginia Institute of Marine Science

P.O. Box 1346, 1208 Greate Road, Gloucester Point, VA 23062

Phone: 804-684-7190 Fax: 804-684-7161 Email: tjm@vims.edu

