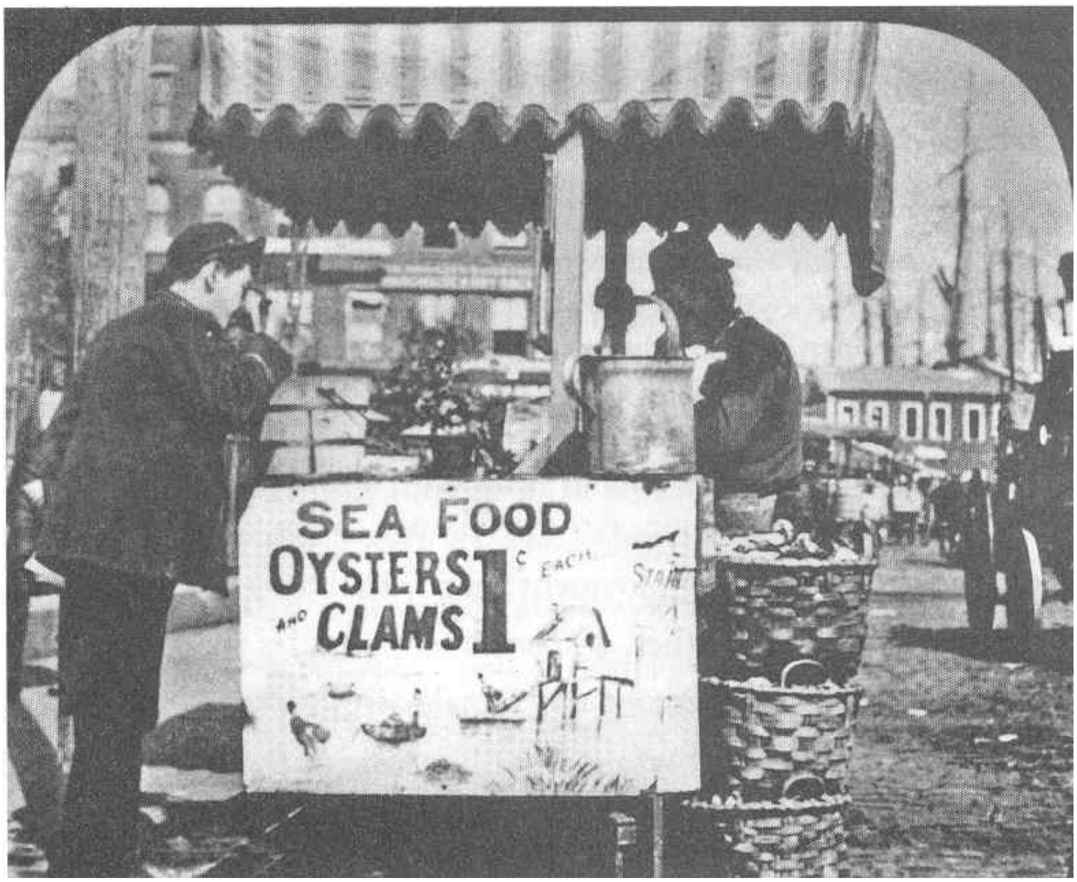
Virginia Shellfish Aquaculture

Situation and Outlook Report

Results of Virginia Shellfish Aquaculture Crop Reporting Survey 2005 - 2007



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Cover Photo - Courtesy of The Museum of the City of New York

This early 20th century "oyster stand" promoted both oysters and clams for sale at 1 cent each. Today these prices equate to an estimated 21 cents per oyster or clam.

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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, there has been a significant transition to intensive aquaculture of native oysters in recent years. 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 2007.

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) Forty-three surveys were returned with 34 complete useable surveys provided including 19 clam growers and 18 oyster growers. In discussions with industry it is felt that the firms responding represent 95% of the total production of Virginia's aquaculture of market size oysters and clams during 2006.

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 2005-2006

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 2006 they had increased plantings by over 115 million clams (29%) compared to 2005. The outlook for 2007 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 2007[1].

Clam Sales and Prices

The 2007 crop reporting survey provides additional details and information from growers which reflects a modest increase in the total number of Virginia market clams sold between 2005 and 2006. During 2006 it is estimated that Virginia had a total farm output of an estimated 194.4 million "market" clams, as shown in Figure 2.

Perhaps most significant for the future is the estimated 30% 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 2006 as 2005 and is projected by growers to remain the same in 2007.[2]

Figure 4 (following page) displays the survey findings regarding relative prices received for market clams. The weighted average price reported per market clam at the farm gate was $.14 during 2006 essentially at the same level overall as 2005.[3] According to the growers, an estimated 90% of the market clams grown in Virginia continued to be shipped to out-of-state markets.

Figure 1: Number of Hard Clams Planted in Virginia 2005-2006

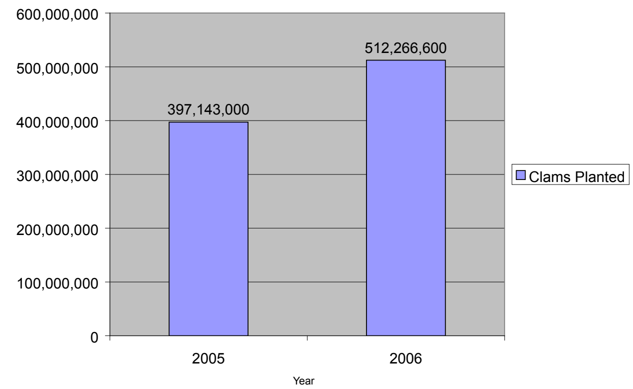


Figure 2. Number of Hard Clams Sold by Virginia Aquaculure Sector 2005-2006

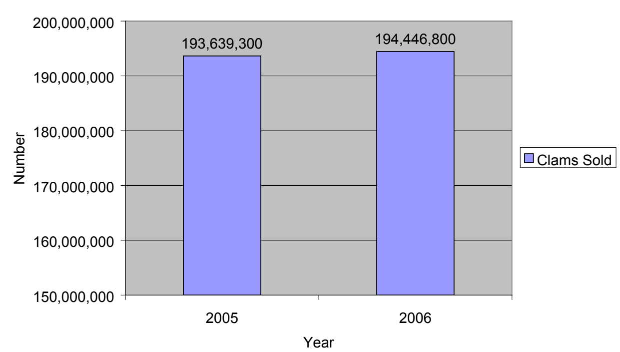
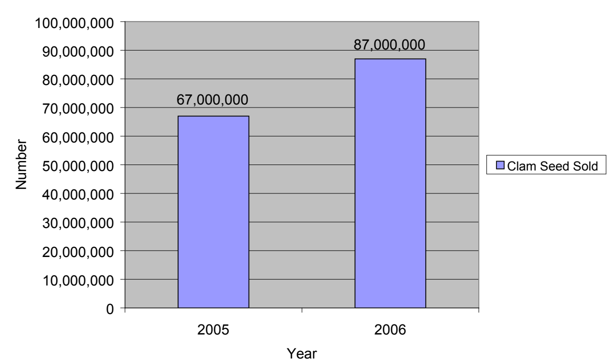


Figure 3. Amount of Clam Seed Sold by Virginia Hatcheries 2005-2006



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[1] Several large growers indicated at the time of the survey that their 2007 planting intentions were not finalized. If those firms repeated their 2006 plantings during 2007, the outlook suggests, an added increase of 9 % for Virginia's industry overall during 2007 to an estimated 560 million seed clams planted.

[2] The price of seed depends upon size but the overall average reported was $.02-$.03 per seed during 2005.

[3] Smaller niche growers, with production and sales of less than 50,000 clams reported average prices as high as $.30. $.15 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.

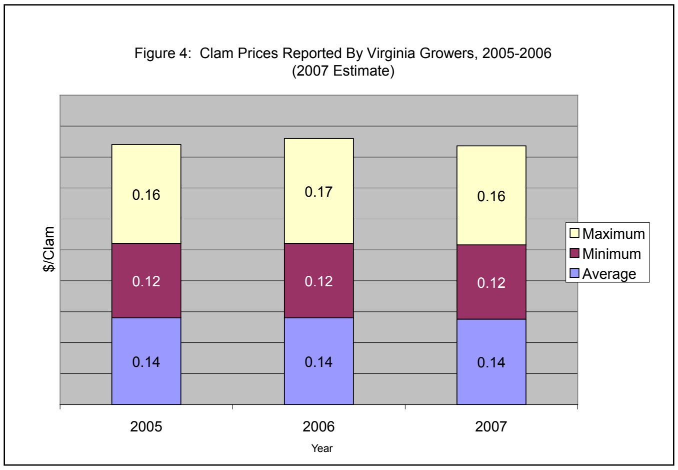

Figure 4: Clam Prices Reported By Virginia Growers, 2005-2006 (2007 Estimate)

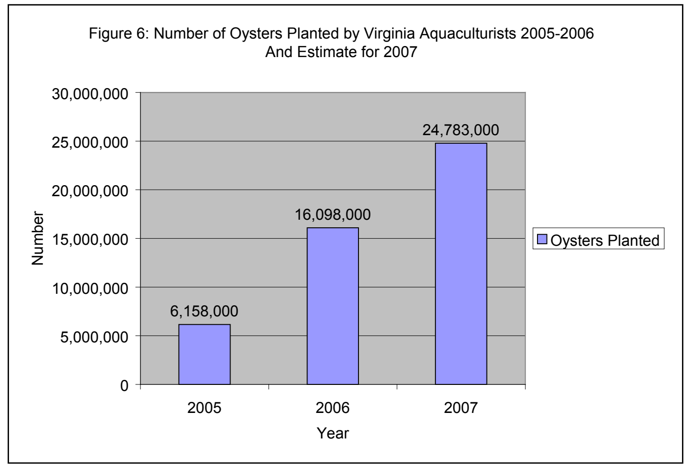

Figure 6: Number of Oysters Planted by Virginia Aquaculturists 2005-2006 And Estimate for 2007

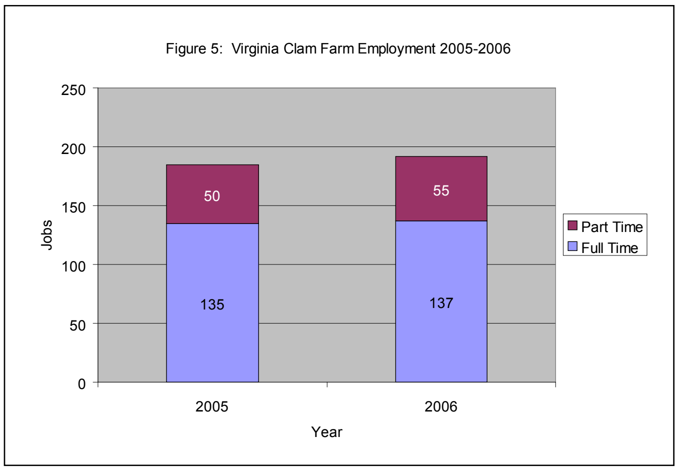

Figure 5: Virginia Clam Farm Employment 2005-2006

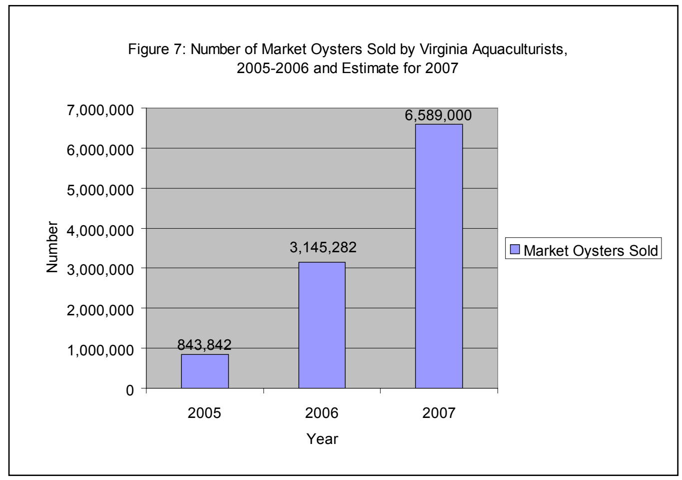

Figure 7: Number of Market Oysters Sold by Virginia Aquaculturists, 2005-2006 and Estimate for 2007

Also, shown in Figure 5, expansion at the farm level has entailed an increasing employment of both full time (+1.5%) and part time (+10%) personnel during 2006.

Virginia Oyster (*Crassostrea virginica*) Aquaculture 2005-2006

The oyster industry continues to evolve from the traditional extensive planting of "shell on bottom" to more intensive, contained aquaculture utilizing cages, racks, and floats.[4] As is depicted in Figures 6 and 7, the growers surveyed expect the growth depicted between 2005 & 2006 to significantly increase into 2007 with a projected near tripling of harvest and sale of market oysters. If expectations materialize, 2007 will see nearly a 50% increase in oysters planted by Virginia oyster growers.

Oyster prices were reported without detail as to market segment; i.e. primary wholesale, secondary wholesale, retail, etc. The data in Figure 8 (following page) show a general anticipation of level prices in the near term even with estimated increases in planting and expected harvest.

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[4] *Historically 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 no 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.*

As depicted in Figure 9, accompanying the expansion in plantings and ultimate marketing levels, the Virginia industry has continued to expand its hatchery capabilities, reportedly producing 26.2 million seed oysters for sale and planting during 2006. The growers surveyed project an additional 57% increase in oyster seed production during 2007 to an estimated 41.2 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.

Finally, as shown in Figure 10, employment in Virginia's oyster aquaculture industry, both full and part time, has risen. Continued growth is projected by growers with expectations during 2007 significantly above employment levels in recent years.

Figure 8: Average Oyster Market Prices Reported By Virginia Growers, 2005-2006 (2007 Estimate)

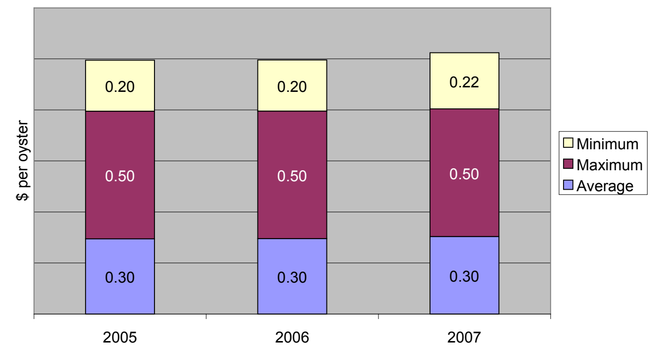


Figure 9: Growth in Oyster Seed Sold by Virginia Hatcheries 2005-2006 (2007 Estimate)

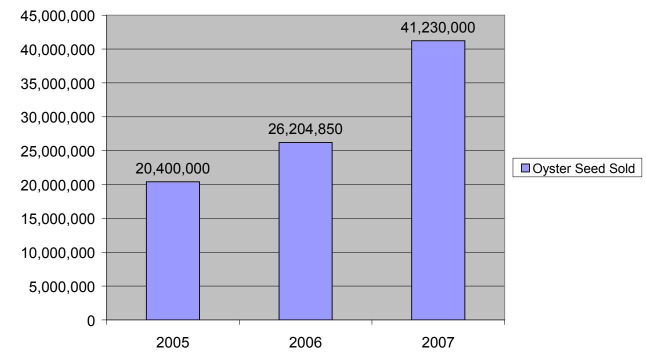
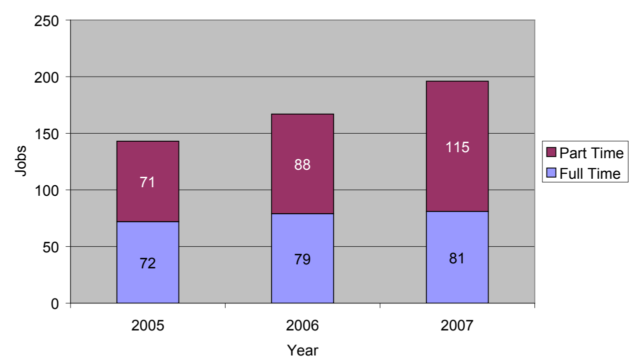


Figure 10: Employment In Virginia Oyster Aquaculture Sector 2005-2006 (2007 Estimate)



Appendix I

WILLIAM & MARY
VIMS
Virginia Institute of Marine Science
School of Marine Science

Sea Grant Virginia
Marine Advisory Program

March 9, 2007

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 last year's study of Virginia's shellfish culture industry we began to see how useful timely information is for the shellfish aquaculture industry. Such information is important for many reasons. One of the most important reasons is so that those who impact your business, can understand how important Virginia's growing aquaculture business is to the economy and how important clean water, reasonable land use and tax policies, access to financial capital and the like, are to shellfish growers.

We are writing you because your business is one part of an important and previously little understood economic base, which when taken together, amounts to vital income, employment and tax base to coastal communities. If you will join others in providing the 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.***

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Michael J. Oesterling
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Virginia Shellfish Aquaculture Crop Reporting Survey 2005-2007
(History and Outlook)

Table 1. Commercial *Clam* Aquaculture Situation and Outlook Survey 2005-2007

	2005	2006	2007 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				

Table 2. Commercial *Oyster* Aquaculture Situation and Outlook Survey 2005-2007				
	2005	**2006**	**2007 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 March 31, 2007 to:
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