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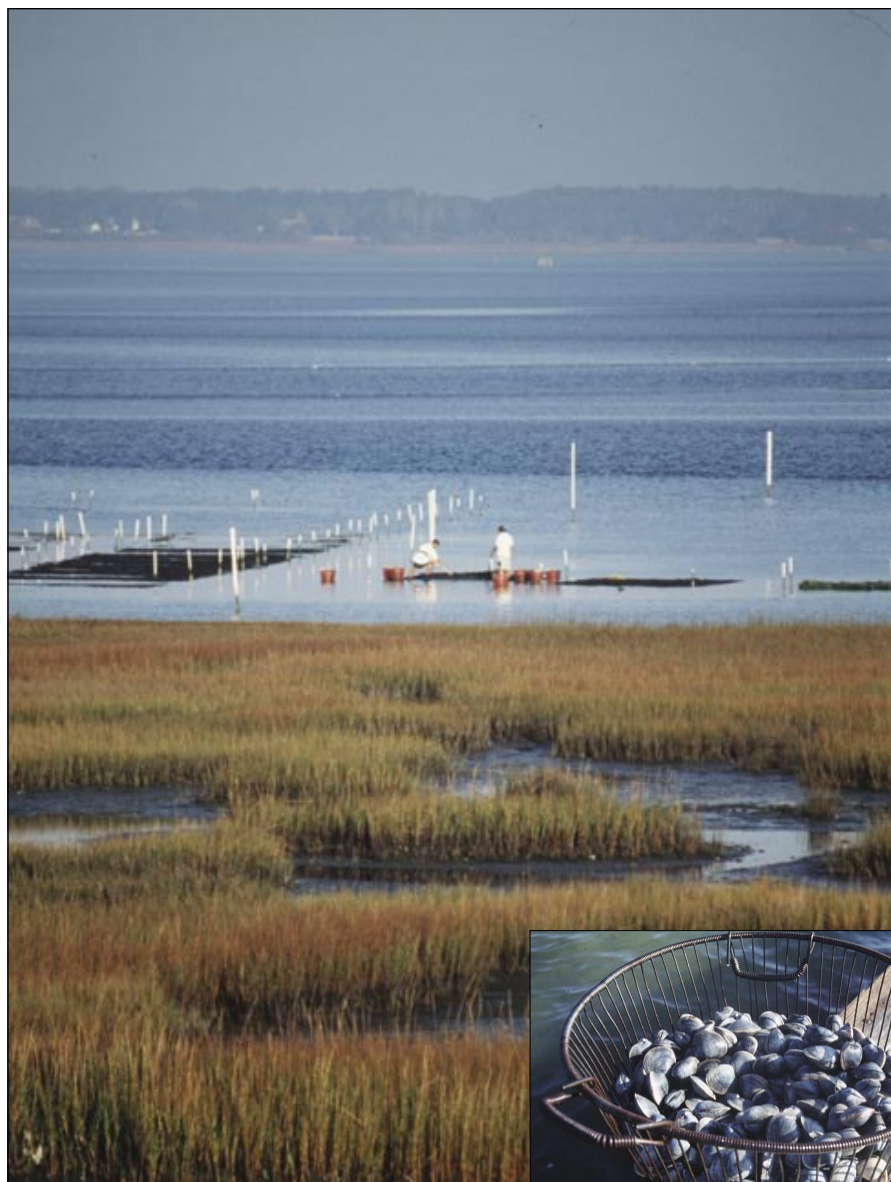
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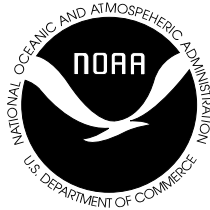
Economic Activity Associated with Clam Aquaculture in Virginia – 2004



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July 2005

VSG-05-04

VIMS Marine Resource Report No. 2005-5



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Economic Activity Associated with Clam Aquaculture in Virginia – 2004

Executive Summary

The growth of the aquaculture clam industry in Virginia has added significant value to the state's seafood marketplace. Today, watermen continue to harvest hard clams from the state's public resources while, at the same time, watermen-farmers provide vast quantities of additional quality seafood to consumers.

Virginia currently ranks first in the nation among states producing hard clams. A unique cooperative effort between industry and academia has fostered this success. This study was completed to assess the current state of the hard clam aquaculture industry in Virginia and to estimate the associated economic activity that occurred during 2004.

Major findings

- Eastern Shore of Virginia hard clam farmers sold 150 million market clams valued at \$23.9 million.
- Hard clams are the second most valuable individual crop grown on the Eastern Shore following nursery and greenhouse plants.
- Virginia hard clam hatcheries produced and marketed an additional 72.5 million clam seeds with a total sales value of \$1.5 million.
- Clam sales spur economic growth throughout the Eastern Shore and the state, as 89% of market clams sold went to out-of-state buyers.
- The initial sales of farm-raised hard clams by Eastern Shore growers generated a direct impact on local economic output estimated at \$29.6 million in 2004.
- The total direct employment associated with these Eastern Shore hard clam farm sales was estimated to be 381 jobs.
- Within the Eastern Shore, personal income associated with initial clam aquaculture sales was \$9.2 million.
- When taken together, the economic impacts resulting from Eastern Shore hard clam aquaculture resulted in economic output of \$48.8 million and added employment of 620 individuals, yielding an overall increase in personal labor incomes of \$15.8 million throughout the state.

- These total economic impacts are summarized below.

Total Economic Impact of Eastern Shore Hard Clam Aquaculture on Virginia - 2004	
Output	\$48,784,301
Employment	620
Income	\$15,826,462

- For the cultured clam industry to continue to thrive, it is essential that water quality standards remain high to allow clam production in current and future lease areas.
- Consideration of the importance of this growing economic sector will be increasingly critical as development continues to put pressure on the integrity of coastal marine resources upon which aquaculture and fisheries depend.

Economic Activity Associated with Clam Aquaculture in Virginia – 2004

Recent Growth in Hard Clam Aquaculture

The harvest of wild stocks of fish and shellfish has historically represented an important economic sector in Virginia. In recent years, there has been increased interest in the potential for culturing marine products. Basic culture techniques were employed extensively in the historic oyster industry prior to endemic diseases destroying the bulk of the wild oyster resource. Today, oyster aquaculture is becoming more common, and new developments offer promise of a possible return to a primary economic endeavor. Clearly, the most exciting advancement in Virginia's recent history with aquaculture has been the development of extensive culture of the hard clam.

The hard clam, *Mercenaria mercenaria* (Linne, 1758) is a euryhaline bivalve found along the eastern and Gulf coasts of North America ranging from the Gulf of St. Lawrence to the Yucatan Peninsula. It has been the focus of important commercial fisheries along the Atlantic coast. Hard clams are consumed in a wide variety of ways. Generally, the larger clams (>80 mm) are used in chowder and the more succulent littlenecks (< 60 mm) ("nicks") and cherrystones (61-80 mm) ("cherries") are eaten either steamed or raw on the half-shell.

The aquaculture methods developed by VIMS in the late 1960s have provided the technology necessary for an aquaculture industry to evolve into a multi-million-dollar economic engine on Virginia's Eastern Shore. The hard clam is currently considered the most valuable single commodity produced among the Eastern Shore's diverse agricultural portfolio--worth over \$20 million at the "farm gate" last year.

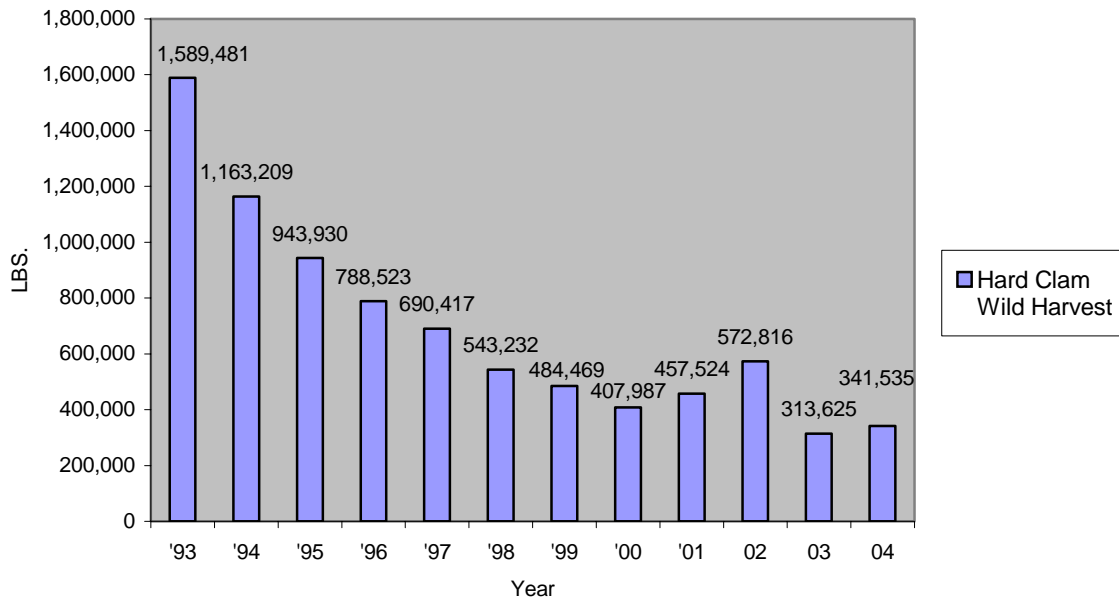
Those early VIMS experiments with aggregates on submerged bottom led to the first successful technology for protecting hard clam seed from natural enemies. Predators (primarily blue crabs, but also cow nose rays and others) destroy nearly all unprotected clams smaller than one inch, the most common market size for the bivalve. The new methods involved spreading shell, gravel, or other materials (aggregate) over sand or mud bottom before planting seed. With such added protection, large-scale planting became economically feasible.

In addition to enhancing production from commercial clam beds, associated techniques developed by VIMS during the late 1960s provided the vital methods for emerging clam hatcheries to produce a virtually limitless supply of seed from selected, fast growing parent stock. Further milestones in applied research by the VIMS faculty also provided the means to hold millions of young clams in trays to avoid predation before setting them out in prepared beds.

The growth of the aquaculture clam industry in Virginia has added value to the state's seafood marketplace. Today, watermen continue to harvest diminished supplies of hard clams from the state's public resources while, at the same time, watermen-farmers provide

significant quantities of additional quality seafood to consumers. Looking back to the seafood supply situation at the time of the ground-breaking VIMS developments, Virginia's wild hard clam harvests fluctuated annually between an estimated 1 million and 3 million clams.

Figure 1. Virginia Hard Clam Harvest From Public Waters (1993-2004)

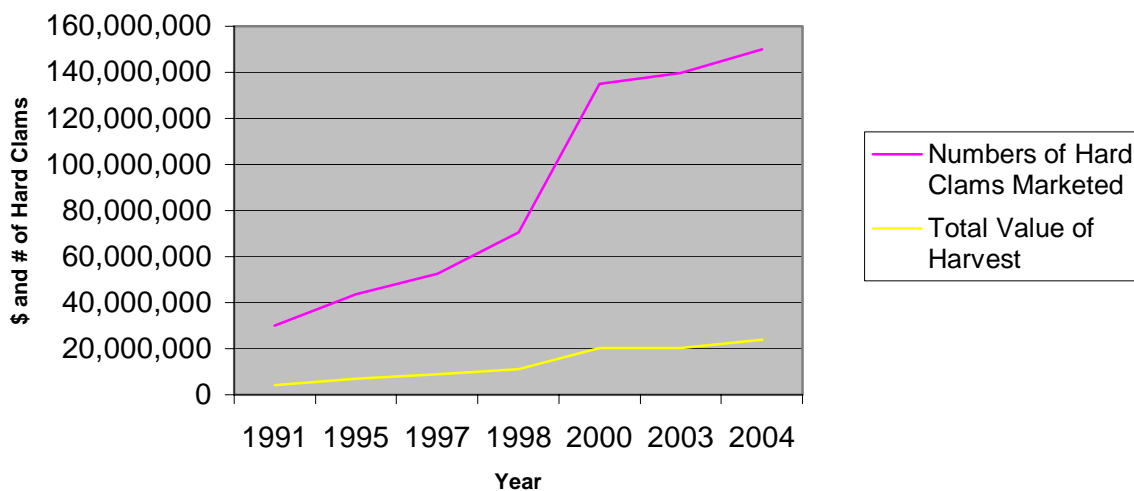


During 1998 (the last year comprehensive federal statistics were published), a reported production of 177,575,000 clams from 360 farms generated farm gate sales of \$50,076,000. Of that total, Virginia and Florida were by far the largest suppliers, respectively producing 40% and 43% of the total farm supply.¹

As depicted in Figure 2, Virginia has shown a continued increase in aquaculture supply from an estimated 30 million littlenecks in 1991 to an estimated 150 million clams in 2004. The value of those harvests rose also, from an estimated \$4.1 million in 1991 to \$23.9 million in 2004. This estimate reflects an average farm gate price of \$.159 per clam.

¹U.S.D.A. 1998 Census of Aquaculture. <http://www.nass.usda.gov/census/census97/aquaculture/aquaculture.htm>.

Figure 2. Growth in Virginia Hard Clam Aquaculture Production, 1991- 2004



Over the same period, Florida’s cultured hard clam sales also increased from an estimated \$5.4 million in 1995 to \$15.9 million in 1999. During 2001, 336 Florida growers sold 142 million clams with an average price of \$.11 per mature clam sold.² The Florida cultured hard clam wholesale/processing industry reportedly had \$21.8 million in sales that year. In 2001, 30 Florida producers sold 478 million clam seed with total sales of \$3.3 million. The total economic output of the clam industry in Florida was \$33.9 million. The dollar value of sales of clams by Florida growers decreased by 30% in 2003 from 2001. There were 31 fewer producers in 2003, receiving an average price of \$.09/ clam.³

During 2001, 565 million hard clams were reportedly covered under pilot federal crop insurance program alone on the Eastern Shore of Virginia, compared to 415.4 million in 2000⁴. For the 2002 crop year, Virginia clam farmers had purchased 74 policies on 190 leases with a total liability of \$27. 2 million, compared to 55 policies on 54 leases with a total liability of \$13.9 for the 2000 crop year.⁵ Knowledgeable sources estimated that, with a 60% overall survival rate representing 2.5 year classes, over 135 million clams were being produced annually on the Eastern Shore of Virginia in 2003.⁶

²Aquacultured clams are typically sold as “markets” or nicks after reaching at 1” (25mm) in shell height.

³ Florida Sea Grant Report SGR 123. December 2001.

⁴ Virginia Shellfish Growers Association Newsletter. February 2002.

⁵ Federal Crop Insurance Corporation Report. 3/4/02

⁶ Personal communication. Mike Oesterling VIMS.

Background

Hard clams are grown on coastal submerged lands leased from the Commonwealth of Virginia. As with other forms of shellfish aquaculture, successful clam farming requires good water quality, free from bacterial and industrial contamination. Generally, the three steps of production include seed production, nursery, and grow-out. Seed production occurs in land-based hatcheries. Brood stock clams are spawned in a controlled, indoor environment. The hatcheries are relatively capital intensive. Spawned juvenile clams are kept in the hatchery until they reach a size where they can be transferred to a land-based or field nursery area. There are approximately eight active private hatcheries in Virginia; all but one, on the Eastern Shore. It is estimated that about 50 smaller growers are actively involved in planting seed. Of the growers without hatcheries, many buy ready-to-plant seed of at least 10mm shell length, while others buy smaller, less expensive seed and grow to planting size in raceways, up-wellers, “spat bags,” or nursery beds on bottom.⁷

Development of Virginia’s industry has centered on the Eastern Shore, where five or six firms contribute an estimated 75% of the overall clam production.⁸ The practice of clam farming on the western shore is relatively insignificant in terms of overall production, but at times it has provided an important adjunct to small aquaculturists. Recent years of heavy rainfall have created salinity regimes on the western shore below those needed by hard clams to grow. Reportedly, this has virtually halted clam growth and severely curtailed sales of western shore clams.

By any measure, the worldwide supply of aquaculture products continues to grow. Although Virginia’s clam industry has grown dramatically over the 1991-2004 period, the economic impact of the industry on the region and state has not been estimated.

For the cultured clam industry to continue to thrive, it is essential that water quality standards remain high enough to allow clam production in current and future lease areas. Permitting and regulatory measures need to remain favorable for economically-viable production of clams to continue. It is essential that state and local decision-makers understand the value of Virginia’s cultured clam sales to the state’s economy. This report represents the first attempt to document the economic importance of the rapidly growing cultured hard clam industry in Virginia.

Methodology

Survey

A mail survey was developed to collect information from Virginia clam growers known to be active in the industry. A preliminary version of the survey instrument was pilot tested and

⁷ “Clam Aquaculture in Virginia”, Dr. Mike Pierson Status of Clam Culture in the United States. February 19, 2000. Virginia Sea Grant Marine Advisory Program.

⁸ Without the existence of a clam aquaculture permit or certification it is impossible to exactly count the number of growers or leases actually being used for clam farming.

revised based upon field testing (Appendix 1). Five completed surveys were obtained from growers, representing an estimated 75% of the total production of Virginia aquacultured hard clams. Other growers were reluctant to provide the production, income, and expense information needed for this study. However, in discussions with industry it is believed that the firms responding represent the vast majority of Virginia market share and all of the large-scale clam farming operations in the state.⁹

For confidentiality reasons, the information collected (while identified as to individual firms) is aggregated, and the total represents both Accomack and Northampton counties (Virginia's Eastern Shore).

Wholesale firms can be both buyers and sellers of clams. This structure presents the potential for counting clams sold more than one time (or, double counting). The vertically integrated firms purchase much, if not all, of the harvest of smaller individual clam farmers. In view of this, it is believed that the data provided by the 5 firms represent a large proportion (75%) of the actual clam production on Virginia's Eastern Shore. In order to avoid double counting, market clams purchased from other Virginia wholesalers and sold through Virginia marketing channels were omitted from the present analysis.¹⁰

Clams obtained from a wholesaler and sold outside the state (to restaurants, distributors, etc.) were not part of the risk of double counting so these sales were included in the overall output for the individual firms. After the value of the wholesale sales was adjusted to eliminate double counting, the value of clam sales for each firm was reported along with total numbers of clams marketed, to arrive at an average price received per clam.

Findings

Eastern Shore hard clam farms sold 150 million market clams valued at \$23.9 million during 2004 at an average price of \$.16 per clam. Virginia hard clam hatcheries produced and marketed an additional 72.5 million clam seeds, with a total sales value of \$1.5 million at an average price of \$.02 per clam. Large growers purchased an estimated 5.3 million market clams from smaller farmers at a total value of \$.531 million, for an average price of \$.10 per clam.

Overall clam sales bring economic growth to the Eastern Shore and the state, as 89% of market clams sold went to out-of-state buyers. Not only does the clam industry contribute in terms of employment and product sales, it produces added economic benefit to Virginia because of the economic activity it generates among the firms that provide inputs to the growers. As can be seen in Table 1, the inputs necessary to produce hard clams for market constitute another level of economic activity. The cost breakdown summarized here

⁹ Overall, it is estimated that there were 25 clam "farms" on the Eastern Shore representing 50 mostly small growers. These growers typically co-op their product and sell primarily to larger, vertically-integrated clam aquaculture firms such as those who participated in the economic data collection survey.

¹⁰ The surveys indicated that 2.7 million market clams were sold between Virginia wholesalers during 2004. Those sales are not included in this analysis.

illustrates the local impact of the hard clam aquaculture industry, as all of the seed, labor, and cooperative purchases are made in the local area. Furthermore, the economic base multipliers for hard clam aquaculture are broadened by the fact that much of the grow-out capital and fabrication of materials is locally generated. This adds significant value to the local economy as well.

In addition to this direct impact, employees within the clam industry generate economic activity when they spend their income on housing, food, and other goods and services. In this way, the economic benefits resulting from clam culture extend beyond the local culture area to the broader Virginia economy. With this in mind, this study was completed to collect primary data from clam growers in an effort to benchmark the extent of the industry and estimate its economic linkages and impacts to the Commonwealth of Virginia.

Cost of Purchased Seed Clams	\$0.25
Purchased Ice	0.01
Containers & Packaging	0.02
Wages & Employee Compensation	0.22
Payroll Taxes	0.01
Employee Benefits Health Insurance	0.01
Freight & Shipping	0.04
Miscellaneous. Supplies	0.03
Equip Repair & Maintenance	0.01
Truck & Auto Expense	0.01
Advertising/Marketing	0.01
Broker Fees	0.01
Building Rent or Depreciation	0.02
Equipment Lease or Depreciation	0.00
Utilities, Phone	0.01
Insurance	0.01
Warehouse Cold Storage	0.01
Interest & Property Taxes	0.01
Other Expenses Including Payments to Other Clam Growers	0.16
Total Costs	\$0.85
Income Before Taxes	\$0.15

Economic Impact Analysis

Economic impact analysis begins with introducing a change in the output of goods and using the multiplier model to analyze the effects on a region's economic base. A standard input-output model estimates the direct, indirect, and induced economic implications of some basic

economic activity. Secondary effects (the indirect and induced impacts), along with the basic economic activity estimates, provide an estimate of the “multiplier” effects from the basic activity (direct impact).

In the standard input-output model, measures of aggregate economic activity are used as a basis for estimating the total economic impact of the subject activity. For example, measures of direct employment or total sales in an industry are obtained, and these are then used as a basis for evaluating the total impact. In this report, estimates of the primary clam sales by Virginia firms were obtained and used as the base measure of the “direct impact” of the industry.

Given this measure of the direct purchases of the clam-farming-related industry, an estimate is made of the indirect impacts using information on the interactions between these industry sectors and other economic sectors which, to varying extent, depend upon such aquaculture-related activity.

For example, suppliers of materials into the clam product’s transportation, storage, marketing, and distribution also depend upon the sales of farm-raised clams. These added sales or impacts are referred to as “indirect impacts.” Such “indirectly” dependent sectors include hundreds of other types of manufacturing and trade, for which industrial classifications range from “Freight & Shipping” to “Containers & Packaging.” Ultimately, the direct sales activity, and the resulting indirect activity, generates some increases in the general level of employment and income in the Eastern Shore and throughout the Commonwealth. The extra income generated in this manner leads to a third “wave” of economic impact through greater household expenditures on goods and services. Much of this additional re-spending will also occur within the local area, further expanding economic activity. These effects are referred to as the “induced impacts” of the industry.

Economic Input-Output Model Application

Most regional input-output studies attempt to characterize either the economic impacts of specified changes in final demand for a given set of products, services, and industries, or the economic significance of specific industries in a regional and national economy. The research described herein accomplishes the latter task. It assesses the economic significance of clam farming upon related industries located in the Eastern Shore and the Commonwealth of Virginia.

Because of the interrelationships among the many sectors of an economy, any new basic economic activity (such as increasing clam sales to out-of-state buyers) will generate additional waves of economic impact. By stimulating the expenditures by out-of-region customers for the export sale of marine products, the clam farming sector initiates such expanding rounds of economic impact. These impacts occur first within Eastern Shore communities and then throughout the Commonwealth.

For example, the marketing of clams from the Eastern Shore and Virginia calls forth additional activity among the suppliers of necessary inputs as well as among distributors of clam-related products, warehouses, and retailers. The impact of the sale of a dollar of clam-farming-related goods and services generates activity not only for the retail sector, but also indirectly generates economic activity for suppliers, accountants, and programmers whose employment supports the operation of the retail enterprise. In an analogous way, the activities of clam-related marketers and consumers will generate multiple rounds of economic activity.

As mentioned above, economic impact analysis is an attempt to provide an estimate of the total impact of any economic activity in any region, including not only the primary economic impact, but also secondary and tertiary impacts.

The Implan Model

Many economic impact studies use information from the Regional Inter-industry Impact Model – (IMPLAN). This model was developed using a combination of direct survey data obtained through national surveys of inter-industry interaction, and then, “shares down” the inter-industry relationships to the local or regional level, based upon the structure or employment structure of industries in the state or region. The IMPLAN model used herein includes industry linkages specific to the Eastern Shore and Commonwealth of Virginia. From these government-derived, regional inter-industry relationships, output, income, and employment multipliers are estimated.

Thus, in terms of simple analysis of the aggregate impacts of activity on the regional economy, published government estimates of the multiplier are used. The use of the “IMPLAN” multipliers for the present analysis is considered reasonable.

To perform the impact analysis, initial information on the level of primary or “basic” economic activity for the industry studied is needed. Measuring the total economic impact of any product, good, or service such as clam aquaculture first requires an estimate of the volume of the goods sold by virtue of the show. While the IMPLAN database system includes a commercial fisheries category, it does not fully represent the characteristics of clam farming. The model was adjusted to reflect the specific characteristics of the Virginia clam culture industry based upon grower income and expenditures identified in the grower survey.

Results

Direct Economic Impacts of Hard Clam Aquaculture

Initial sales of farm-raised hard clams by Eastern Shore growers generated a direct impact on local economic output estimated at \$29.6 million in 2004. This direct economic impact of hard clam aquaculture manifests itself in other economic growth measures as well. For example, the total direct employment associated with these Eastern Shore hard clam farm sales was estimated to be 381 (full- and part-time jobs).

Additionally, the output and employment associated with the Eastern Shore clam farms generated an increase in labor incomes earned throughout the region. For the Eastern Shore, personal income associated with initial clam aquaculture sales was \$9.2 million.

Table 2 below summarizes three standard measures of direct economic impacts of Virginia's Eastern Shore hard clam aquaculture.

Table 2. Direct Economic Impact of Eastern Shore Hard Clam Aquaculture on Virginia - 2004	
Output	\$29,587,920
Employment	382
Income	\$9,192,987

Indirect Economic Impacts of Hard Clam Aquaculture

Having calculated the first or "direct" effects of clam farming on various measures noted above, the further "ripple" effect of the initial change was quantified using an input-output model.

Based upon information on the interrelationships among sectors of the regional economy, the values of the inter-industry "multipliers" are generated by the IMPLAN input-output model. That is, quantifying from which industries the clam aquaculture sector buys its production inputs, and to which sectors its final products are sold, enables estimates of the multiplier effects to be made. Understanding both the purchases of inputs and sale of goods and services by the marine products sectors allows "forward" and "backward" linking of the clam farming sector's economic activity. This permits the tracing of expenditures as they "multiply" throughout directly and indirectly impacted sectors. Indirect impact measures are shown in Table 3.

Initial sales of clams by Eastern Shore growers generated further indirect impact on local economic output of an estimated \$9.9 million in 2004. As with direct impacts, the indirect

economic impact of hard clam aquaculture manifests itself in other economic growth measures. For example, the total indirect employment associated with firms providing necessary inputs (Table 1) to the Eastern Shore hard clam farm sales was estimated to be 116 (full- and part-time jobs) in 2004.

Additionally, the output by firms selling to Eastern Shore clam farms generated additional increases in personal incomes earned throughout the region. For the Eastern Shore, personal income associated with the indirect support sectors of the hard clam aquaculture industry was \$9.2 million in 2004.

Table 3. Indirect Economic Impact of Eastern Shore Hard Clam Aquaculture on Virginia - 2004	
Output	\$9,977,724
Employment	116
Income	\$3,571,223

Induced Economic Impacts

As a result of the added employees' compensation and personal income directly generated from clam farm sales, and similar growth in indirect (supply) industries, overall income levels rise, with further expansion of expenditure and economic activity in the region. The direct and indirect increases in household incomes noted above bring about economic activity in non-clam aquaculture industry sectors such as retail trades, eating and drinking establishments, banking, hospitals, real estate, and more.

The induced or third-round economic impacts, which result from the direct and indirect economic activity shown above, are summarized in Table 4.

Table 4. Induced Economic Impact of Eastern Shore Hard Clam Aquaculture on Virginia - 2004	
Output	\$9,218,657
Employment	123
Income	\$3,062,251

Total Economic Impact

To summarize, in addition to direct impacts, two other types of impacts are estimated:

- Indirect impacts which measure the change in production in backward-linked industries caused by the changing input needs of directly affected industries; and

- Induced impacts which measure the change in regional household expenditure patterns caused by changes in household income arising in the direct and indirect sectors.

When taken together, the economic impacts resulting from Eastern Shore hard clam aquaculture result overall in increases in: economic output of \$48.8 million and added employment of 620 individuals, accompanied by an overall increase in personal labor incomes of \$15.8 million. These total economic impacts are summarized in Table 5 below.

Table 5. Total Economic Impact of Eastern Shore Hard Clam Aquaculture on Virginia - 2004	
Output	\$48,784,301
Employment	620
Income	\$15,826,462

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Appendix I

Cover letter and survey instrument follow (4 pp).

January 14, 2005

Dear Virginia Aquaculture Clam Producer,

The Virginia Sea Grant program is completing a study of the economic impact of Virginia's hard clam aquaculture industry on the eastern shore and the State. We need your help to complete this important study. This is the first comprehensive economic impact study of Virginia's hard clam aquaculture industry ever conducted. I know you can understand the value of the economic impact information which will be provided by such a study to both the public and private sectors. Your help is critical to properly estimate the total employment, incomes, value added and taxes generated by your industry to your local community and the State.

We are asking you to review the attached survey and based upon your **2004** income and expenses; please provide the information where possible. If you cannot provide exact amounts for each item, please provide your best estimate for your company. All information provided by you will be held in the strictest confidence, reviewed only by me and used only when totaled with responses from other Virginia hard clam producers. No individual firm's information will be reported in any form.

Please return by February 15, 2005 by either fax 804-684-7161 or U.S. mail to Tom Murray at P.O. Box 1346, Gloucester Point, VA 23062. If you wish, I can email you a survey for you to complete and return to me <tjm@vims.edu> electronically.

Please let me know if you have any questions or want to discuss the survey more specifically. We appreciate your willingness to provide us the benefit of your company's experience in the industry during the past year.

Sincerely,

Thomas J. Murray
Marine Business Specialist
Virginia Sea Grant Marine Advisory Program
P.O. Box 1346
Gloucester Point, Virginia 23062
Phone: 804-684-7190
Fax: 804-684-7161
Email: tjm@vims.edu

2004 Survey of Virginia Hard Clam Industry

Company/Division (optional)	_____
Location (city or county)	_____

Business function performed

Please circle the major business functions that you perform (indicate more than one if appropriate).

"Fishhouse" or dockside buyer

Broker

Distributor or secondary wholesaler

Importer

Clam Producer

Exporter

Primary species/products handled	% of business sales	Notes
Hard clam	_____	_____
Other finfish and shellfish	_____	_____

Employment (including management)

	Number of Employees	Hours per Week Worked	Months per Year Worked
Full-time year-round			12
Part-time year-round			12
Full-time seasonal			
Part-time seasonal			

2004 Survey of Virginia Hard Clam Industry

Please provide your annual operating expenses for the following items. Expenses can be provided in **either** dollars **or** as a percent of total revenues.

	Dollars	Percent of Sales
Total revenue (sales)	_____	_____
Cost of purchased market or seed clams	_____	_____
Purchased ice	_____	_____
Containers and packaging material	_____	_____
All wages and employee compensation	_____	_____
Payroll taxes (FICA, etc.)	_____	_____
Employee benefits (e.g., health insurance)	_____	_____
Freight, shipping charges	_____	_____
Misc. supplies	_____	_____
Equipment repair and maintenance	_____	_____
Truck and auto expense	_____	_____
Warehousing/cold storage	_____	_____
Advertising and marketing	_____	_____
Travel and entertainment	_____	_____
Broker fees	_____	_____
Building rental or depreciation	_____	_____
Equipment lease or depreciation	_____	_____
Utilities/telephone	_____	_____
Office supplies	_____	_____
Legal accounting, professional fees	_____	_____
Insurance	_____	_____
Interest	_____	_____
Property and local (non-income) taxes	_____	_____
Other significant expenses	_____	_____
_____	_____	_____
_____	_____	_____
Total costs	_____	_____
Income before tax		

2004 Survey of Virginia Hard Clam Industry

What were your sales of the following clam products?				
Sales by Product				
Product	Quantity #	Sales in Dollars		
Market clams	_____	\$	_____	
Clam seed	_____	\$	_____	

What were your purchases of hard clam products by the following categories?		
Product	Quantity #	Cost to You
Market clams purchased from Virginia fishermen	_____	\$ _____
Market clams purchased from other wholesalers	_____	\$ _____
Seed clams purchased from Virginia processors or wholesalers	_____	\$ _____
Seed clams purchased from outside Virginia	_____	\$ _____

Could you provide an approximate estimate of sales of your major products to the following types of outlets?				
	Virginia Restaurants	Virginia Retail Outlets	Other Virginia Wholesalers/Processors	Other Outlets Outside of Virginia
Market clams	_____ %	_____ %	_____ %	_____ %
Seed clams	Virginia		Out-of- State	
	_____ %		_____ %	