Economic Impact of Working Waterfront – Hampton, Virginia

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Overview and Purpose of the Study

This study was performed to illustrate and quantify how much working waterfronts in this case, a seafood unloading and processing facility, contribute to a local and regional economy. Specifically the study addresses two objectives:

(1) Describes how seafood landing, processing and distribution activities at a working waterfront facility are linked to other businesses within the local community and the surrounding region;

(2) Estimates the economic impact (i.e., expenditures, economic output, incomes, and jobs) of the working waterfront.

Background

Hampton's commercial fisheries industry has historically represented an important component of the Commonwealth's commercial seafood industry. Hampton (still known to some as "crab town") was once responsible for processing nearly 50% of the crab meat produced in Virginia. Much of that economic activity has dispersed or simply been displaced by other non-water dependent economic activity.

Some of the historic working waterfront does remain. For example, much of the traditional seafood offloading, grading, packing, and processing in Hampton occur at L.D. Amory & Company, Inc. Seafood-laden vessels returning from extended trips navigate the federal channel into the Hampton anchorage basin so that they may dock and unload at the processing facility. Commercial fishing vessels are offloaded and the vessels then typically move to an adjacent dockage to refuel, make repairs, and prepare for the next trip. During this process, most of the revenues earned on a trip are spent within the local economy. Amory Seafood is a classic example of working waterfront representing a critical nexus between the marine fisheries and the community providing the primary remaining commercial fishing unloading point in Hampton. In view of this, the facilities socio-economic place in the community is both unique and fiscally important.

Today, most fishery products landed locally are not typically harvested in the waters immediately adjacent to the community, but rather are harvested from offshore waters and distant regions. Hampton became an important off-loading site due to the proximity to both inshore and offshore fishing grounds, presence of several processing/packing firms, availability of a wide range of repair and maintenance services, availability of fuel and ice, and significant, albeit limited, room for off-loading and moorage.

The off-loading of fishery products at the Hampton processing/packing facility sets in motion a number of economic activities that result in the sale of fresh and frozen value-added seafood products outside of Hampton. These economic activities include spending and re-spending of dollars, which creates incomes and jobs within several associated industries and markets. This process begins only with the off-loading of fresh whole fishery and seafood products at the processing/packing facility following a harvesting "trip" by a commercial seafood vessel. Typically the vessels' unloading use the catch proceeds to pay the crew and make local purchases necessary for the next trip. These purchases include fuel, ice, supplies, net/door repairs, deck equipment and hull maintenance, electrical services, groceries for the next trip, and other goods and services. The vessel crew also spends money within the local economy for lodging, transportation services, eating and drinking establishments, entertainment, and other activities.

Prior to being sold into the next market level, the processing/packing facility processes the offloaded seafood by cutting if necessary, sorting by size, boxing/icing and consolidating deliveries for shipment nationwide. In doing so, a "value-added" margin is created at each step as expenditures are incurred (labor, storage, refrigeration, packing materials, etc.) when the seafood is processed and packed for shipment. The resulting wholesale price then includes the original dockside price plus the margin and a profit markup. The wholesale buyer ships the seafood products out of the local area for further processing elsewhere or sells to distributors, food service buyers, grocery markets, or retail customers within Hampton and neighboring regions. When sold to either buyers outside of Hampton or non-residents visiting in Hampton, the transactions bring "new" revenue into the local economy.

The amount of economic activity associated with the Hampton seafood processing/packing industry is directly related to the volume and value of seafood off-loaded into the dockside processing facilities. The volume harvested is determined by the number of offshore and Bay fishing vessels unloading at the facility which is also determined by a number of factors such availability of competitive unloading facilities; stock abundance and fishing effort, which are in turn affected by environmental conditions in the fishing

regions; short-term weather conditions; state and federal fishery management measures such as quotas and seasons; and, the general market for seafood specific fishery products such as flounder.

Methodology

Collecting the Necessary Data

In order to understand the linkages with related industry sectors associated with off-loading, processing and packing seafood in Hampton, in depth interviews were conducted with the manager and owner of the seafood processing/packing facilities in Hampton. These interviews yielded detailed information on disposition of initial payment to off-loading seafood vessels, vessel revenue/expense categories and amounts, expenditures associated with processing the seafood (i.e., sorting, washing, thawing, heading, packaging, storing, and shipping and packing). Additional estimates of the percentage processed seafood exported from Hampton, numbers of vessels off-loading during a typical season, number of off-loading events per vessel per season, and other related information was obtained.

Economic Impact Estimation

The information collected was utilized in estimating the initial economic activities in the Hampton economy associated with one firm in the Hampton seafood processing/packing industry. These economic activities take the form of initial expenditures, economic output, wages, salaries, and employment.

Values for each of these are estimated by employing the IMPLAN model, a computer software and database package designed for regional economic impact analysis in the United States at the county level (Minnesota IMPLAN Group, Inc., 1997). The analytical framework for IMPLAN is the "input-output" economic modeling approach originally described by Leontief (1959). The model utilizes databases consisting of a set of social/economic accounts which describe the structure of the U.S. economy in terms of transactions between households, governments, and over 500 standardized industry sectors classified on the basis of the primary commodity or service produced. This model utilized the IMPLAN economic data package for the City of Hampton and the Commonwealth of Virginia.

Regional models may be constructed in IMPLAN for any county, group of counties, or state or territory in the U.S. Economic impacts for a given region are specified in IMPLAN as a change in final demand, output, or employment for a particular industry sector or social institution, (e.g., households, government). The aggregate economic impact of these changes is calculated by a matrix inversion procedure that develops economic multipliers, which reflect the direct, indirect and induced impacts. Direct, indirect, and induced impacts are set in motion within the City of Hampton by changes in the supply and demand of raw seafood, which in turn affects the demand for the goods and services associated with producing raw seafood.

The commercial seafood industry in Hampton represents a "basic" industry in that it produces a product for sale outside the local area. Dollars generated through these out-of-county sales (or consumption locally by non-residents), when re-spent in the community, produce additional county-wide economic impacts. A "basic" industry directly affects economic activity in the region when its product is sold outside the local area. For the commercial seafood industry in Hampton, this would include sales, jobs, and earnings generated in commercial fishing and other activities related to the preparation of the seafood for shipping to market. These *direct* activities produce additional *indirect* effects in the local economy as dollars earned through the sale of seafood are re-spent locally[1]. Indirect effects represent purchases of local products by seafood vessels, such as ice, fuel, gear and net repair, groceries, etc. All the indirect effects are additional economic activity in the community and are indicative of additional jobs and income generated by the sale of seafood outside the community.

Direct and indirect activities associated with commercial seafood harvesting, processing and the sale of seafood outside Hampton then produce additional *(induced)* local impacts. These impacts are associated with the spending of income earned in the direct and indirect activities. This spending translates into local retail sales, local bank deposits, and the purchase of a diverse mix of consumer goods. An assessment of the total economic impact of a basic industry, such as commercial seafood on Hampton, must consider the sum of the direct, indirect, and induced activities. In essence, the sale of Hampton landed fishery products outside the community triggers a chain of local spending, which generates income and leads to additional spending. This process, however, is not infinite in nature. At each round of spending, for example, some dollars are lost (leaked) from the local economy. Leakages are in the form of savings in non-local institutions, taxes/fees paid to the state and federal governments, and payments for goods and services used in the preparation of raw seafood for market, which are initially purchased outside the local area. Thus, the true economic

[1] *See Appendix 2 for a Glossary of Economic Impact modelling definitions.*

impact from non-local sales of Hampton-landed seafood is represented by the new dollars remaining after accounting for the various "leaks" in the Hampton economy overall in specifically its seafood processing/packing industry.

Thus, the total economic activities and impacts to the Hampton economy initiated by off-loading seafood in Hampton are estimated. The *direct, indirect,* and *induced* effects, are expressed in standard impact terms of economic output (sales of seafood), personal incomes, total value added (wholesale margin), and employment is estimated via the IMPLAN model. The estimates are from actual landings financial information for 2012.

Hampton Industry / Economy Linkages

The economic linkages between the Hampton seafood processing/packing industry and other sectors of the local economy were revealed in part through individual interviews and consultations with members of the local business community in Hampton. However, additional insight into the economic linkages was obtained by a review of annual cost data for 15 commercial fishing vessels similar to those that utilize the Hampton anchorage as their homeport. During the 2012 season, 37 different offshore vessels, and 25 individual inshore (Bay) boats were unloaded on a continual basis. These vessels typically incurred similar expenses related to harvest and overhead. The largest single expenses were crew share, fuel, maintenance and repair and supplies. Other costs included nets and gear, groceries, insurance, and loan interest. Crew share (offshore seafood vessels typically have at least 3 crew members) represents incomes spent within the local economy, particularly if the crewmembers reside in households within the community. Crew members from non-local vessels also spend a large portion of their crew share within the local economy for lodging, food, entertainment, transportation, etc. while waiting for their vessel to make the next trip.

The economic activities associated with the seafood industry are set in motion by the landing of raw seafood flows to the processors/packers as dockside revenues flow to the vessels. The raw seafood is then processed (gutted, graded, boxed, iced, etc.) by the processors/packers. To accomplish this task, however, supplies are purchased from local suppliers of goods and services, while labor is purchased from local households.

Some seafood is sold to local seafood distributors and retailers, but the majority is sold to wholesale firms out of the region. The revenue generated by these "export" sales represents new dollars in the Hampton economy that are then spent again and again within the local economy as earnings by local households are used to purchase goods and services from other local businesses and seafood from local seafood dealers. In addition, dockside revenues initially paid to seafood vessels is used by crewmembers to purchase goods and services from both fishing-related suppliers other local businesses. Some dockside revenues are used to purchase labor from local households as seafood vessel crewmembers. Some dockside revenues may also be retained in the local economy by vessel owners who reside in Hampton households. Finally, some of this revenue is used to re-initiate the process by purchasing the next load of seafood that arrives at the dock.

Results of the Economic Impact Analysis

The magnitude of the estimated economic impacts is directly related to landings volumes, dockside price, wholesale markup, and the export percentage. Thus, the actual economic impacts associated with the Hampton seafood industry will vary from year to year. As landings increase, the economic impacts will increase (assuming all other factors remain proportionally constant). Similarly, as landings or market price for seafood decrease, the economic impacts will also likely fall.

This is of interest given the reported constraints on moorage space that confront the seafood processing/packing activities on Hampton. Seafood-laden vessels returning from a trip will moor in a parallel fashion at the dock in front of one of the facility. The seafood is off-loaded by hand or mechanically. This task is time consuming and requires the use of both vessel deckhands and workers from the processing facility. Once the vessel is emptied, it will move out of the way to make room for the next vessel to be off-loaded. The empty vessel will moor at an adjacent location and begin servicing (i.e., maintenance, refueling, repair, etc.) required for the next trip. At times vessels will be moored three and four abreast for several days as they wait servicing for the next trip. The logistics of accepting additional vessels to be off-loaded becomes a problem when there is insufficient room at the docks to moor empty vessels. When the moorage space within the basin is fully utilized, incoming vessels may need to be off-loaded at other suitable locations which are limited in number and capability.

In such an event the economic activity associated with the seafood products that would have been off-loaded in Hampton is lost to the local economy; as well as the provisioning of the vessels for the next fishing voyage.

In a real sense, the values reported herein also provide an estimate of the economic impact that is lost to the local economy when commercial fishing vessels lose water access to Hampton and its working waterfront, choosing the next best alternative port facility out of the region.

The seafood processing/packing industry on Hampton represents an important component of the local economy. Activities associated with harvesting, offloading, processing, packing, and shipping seafood from the Hampton facilities has been shown to be intrinsically linked with several sectors of the local economy. These activities create positive economic impacts to the local economy as seafood products are sold to buyers located outside of Hampton and nonresidents purchase seafood locally. The sale of seafood to both local and non-local buyers results in the purchase of inputs from a variety of service and supply firms, and the distribution of incomes to local employees. These expenditures are circulated within the Hampton economy as these dollars are spent and re-spent. The total economic impact of the Hampton seafood industry depends on the amount of seafood landings and the general economic conditions that exist at any given time. Thus, the actual impact values will vary from year to year.

Similarly, the economic impacts associated with an average off-loading event can vary. Table 1 reflects the ranges of economic impact of this working waterfront using two different data assumptions. Under normal conditions with landings at the volumes reported during this project, the total economic output associated with all seafood off-loading events are estimated to approach $15.6 to $17.8 million. In addition, $3.8 to $5.0 million in personal incomes, $5.3 to $7.1 million in value added impacts, and almost 283 to 296 jobs may result. These values also reflect the type of economic losses that would be associated with vessels being diverted from Hampton should the commercial fishing working waterfront facilities in Hampton be displaced or otherwise become unavailable.

Comparison of impacts using IMPLAN Commercial Fishing Sector (17) for seafood versus actual fishing vessel P&L data demonstrate a reasonable range of values for Hampton Virginia. On a summary level the comparison is listed in Table 1.

The larger total output value for the Sector 25 impacts is attributable to the assumption that all of the value of seafood is included in the direct output for Amory's operations. In contrast when this value of landings are distributed across the various categories of expenditure much of this spending leaks from the local economy (in this case the Virginia economy).

Interestingly, there is relatively little difference in the employment impacts of the alternative calculations. In both calculations the majority of the jobs are in commercial fishing, about 240 jobs in each case. Given the very low income associated with each "job," it is worth emphasizing that these job estimates are associated with the landings of fishing vessels. The crews on most vessels are in fact not employees but rather are self-employed generating income only as a share in the sale of the catch. As such they are short-term employments. For any given commercial fisherman, several of these jobs are likely to constitute employment in a given year.

Conclusions

This study has shown that the seafood processing/packing industry in Hampton generates positive economic impacts to the local economy. Any decisions to address the water access for commercial seafood operations such as those that currently exist should carefully consider the economic contributions associated with the industry, while comparing against the costs of creating additional moorage space or reconfiguring the existing dock space.

Table 1. Economic Impact of Amory & Company Using Two Model Calibrations

	Using Sector 17	Using fishing vessel P&L
Labor Income Impacts	$3.8	$5.0
Indirect Business Tax Impacts	$0.5	$0.6
Other Property Income Impacts	$0.9	$1.5
Total Value Added Impacts	$5.3	$7.1
Output Impacts	$15.6	$17.8
Employment Impacts	283	296

Appendix 1. Working Waterfront: Ranges of Economic Impacts

Detailed Economic Impact of Amory & Company Using Two Model Calibrations ($ Millions)		
	Using Sector 17	**Using fishing P&L**
Labor Income Impacts (Primary)	$1.8	$2.3
Direct Impacts	$0.5	$1.2
Indirect Impacts	$0.8	$0.5
Induced Impacts	$0.7	$1.0
Total	$3.8	$5.0
Indirect Business Tax Impacts (Primary)	$0.1	$0.1
Direct Impacts	$0.1	$0.3
Indirect Impacts	$0.1	$0.0
Induced Impacts	$0.3	$0.2
Total	$0.5	$0.6
Other Property Income Impacts (Primary)	$0.0	$0.0
Direct Impacts	$0.2	$0.5
Indirect Impacts	$0.3	$0.2
Induced Impacts	$0.4	$0.7
Total	$0.9	$1.5
Total Value Added Impacts (Primary)	$1.9	$2.4
Direct Impacts	$0.9	$2.0
Indirect Impacts	$1.1	$0.8
Induced Impacts	$1.4	$2.0
Total	$5.3	$7.2
Output Impacts (Primary)	$9.5	$9.5
Direct Impacts	$1.4	$3.7
Indirect Impacts	$2.2	$1.3
Induced Impacts	$2.4	$3.3
Total	$15.6	$17.8
Employment Impacts (#) (Primary	243	243
Direct Impacts	7	17
Indirect Impacts	14	9
Induced Impacts	19	27
Total	283	296

Appendix 2. Glossary of Input-Output Terms

Direct effects/impacts: Direct impacts represent the revenues, value-added, income, or jobs that result directly from an economic activity within the study area or a regional economy.

Employment or Jobs: Represents the total numbers of wage and salaried employees as well as self-employed jobs. This includes full-time, part-time and seasonal workers measured in annual average jobs.

Indirect Business Taxes: Include sales, excise, and property taxes as well as fees and licenses paid by businesses during normal operations. It does not include taxes on profits or income.

Indirect effects/impacts: Indirect effects occur when businesses use revenues originating from outside the region, or study area, to purchase inputs (goods and services) from local suppliers. This secondary, or indirect business, generates additional revenues, income, jobs and taxes for the area economy.

Induced effects/impacts: Induced effects or impacts occur when new dollars, originating from outside the study area, are introduced into the local economy. Induced economic impacts occur as the households of business owners and employees spend their earnings from these enterprises to purchase consumer goods and services from other businesses within the region. This induced effect generates additional revenues, income, jobs and taxes for the area economy.

Input-Output Analysis: The use of input-output models to estimate how revenues or employment for one or more particular industries, businesses or activities in a regional economy impact other businesses and institutions in that region, and the regional as a whole.

Input-Output Models: A mathematical representation of economic activity within a defined region using inter-industry transaction tables or matrices where the outputs of various industries are used as inputs by those same industries and other industries as well.

Labor Income: All forms of employment compensation, including employee wages and salaries, and proprietor income or profits.

Local/ Resident revenues/expenditures: Local revenues or spending represent simple transfers between individuals or businesses within a regional economy. These transactions do not generate economic spin-off or multiplier (indirect and induced) effects.

Margins: Represent the differences between retail, wholesale, distributor and producers prices.

Non-resident /Non-local revenues/expenditures: When outside or new revenues flow into a local economy either from the sale of locally produced goods and services to points outside the study area, or from expenditures by non-local visitors to the study area, additional economic repercussions occur through indirect and induced (multiplier) effects.

Other Property Type Income: Income in the form of rents, royalties, interest, dividends, and corporate profits.

Output: Revenues or sales associated with an industry or economic activity.

Total Impacts: The sum of direct, indirect and induced effects or economic impacts.

Value-added: Includes wages and salaries, interest, rent, profits, and indirect taxes paid by businesses. In the IMPLAN results tables, Value-added equals the sum of Labor Income, Other Property Type Income, and Indirect Business Taxes.

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