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**Economic Activity Associated With The  
Use of Imported Shrimp in the U.S.**

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*Performed by*

**Thomas J. Murray & Associates, Inc.**

*On behalf of the*

**American Seafood Distributors Association**

January 2003

**Final Report**

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### **Executive Summary**

The use of imported shrimp by U.S. processing, distribution, and marketing industries is an increasingly significant value added activity that benefits the nation's economy. This study quantifies the economic significance of the imported shrimp marketing and distribution sectors in the U.S., based upon published information from federal and state agencies and public universities.

The report describes the national economic impact of all shrimp entering the U.S. in 2001 by estimating industry output, employment, income and value added associated with the purchase of imported shrimp products at retail and foodservice establishments. The year 2001, rather than 2002, was selected because both full year import data and published profit margin data are available for that year.

### ***Major Findings***

- ❑ Imported shrimp products constituted 88% of all shrimp consumed in the U.S. and 37% of the value of all seafood products imported into the U.S. during 2001, the most recent full calendar year for which data are available.
- ❑ Imported shrimp represented 27% of the value of all raw marine fishery products available to the U.S. marketplace in 2001.

- The direct economic impacts associated with the marketing of imported shrimp were increases of industrial output in the U.S. of \$3.8 billion, income growth of \$1.37 billion, and value added increases of \$1.9 billion. Over 80,000 directly related jobs were needed to provide that level of output.
- The indirect economic impacts were increases of industrial output of \$2.2 billion, income growth of \$742 million and value added increases of \$1.2 billion. An additional 18,000 indirectly related jobs were needed to provide that level of output.
- The total economic activity generated by the marketing of imported shrimp products in the U.S., after inclusion of additional “induced” impacts, was an estimated \$9.854 billion in economic output, \$5.354 billion in value added, and \$3.458 billion in income. Over 138,000 jobs were needed to support that level of total output.
- The value of imported shrimp was 12% greater than the value of all seafood products harvested by U.S. fishermen during 2001.

## Introduction

This analysis assesses the economic significance of the marketing of imported shrimp products in the United States by measuring net contributions to gross output, value added, income and employment. Published information from federal and state agencies and public universities has been utilized to provide the estimates because it is the best information available from public sources at this time. The estimates are made at the national level.

## Background

Growth in U.S. consumption of imported shrimp has been dramatic, particularly in view of the stable consumption pattern of seafood in general. Since 1980, the per capita consumption of shrimp has increased by 143%, while the consumption of all seafood products has increased only 18% over the same period.<sup>1</sup> U.S. trade figures document the rise in consumption and the associated increase in imported shrimp imports. In 1980, consumption of shrimp in the U.S. was 466 million pounds (“shell-on, headless”) of which 45% (208 million pounds) was produced by the U.S. shrimp fleet. In 2001, U.S. consumption had grown to almost 1.4 billion pounds, with the U.S. shrimp fleet supplying only 170 million pounds. (4)<sup>2</sup>

According to NMFS, only about one-third of all seafood consumed in the United States originates from U.S. waters. However, since much of the eventual product transformation and value added occur domestically, about two-thirds of the final retail price of all seafood consumed in the U.S. is value added by U.S. businesses. (1)

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<sup>1</sup> U.S. shrimp annual consumption has grown from an average of 1.4 lbs. per capita to 3.4 lbs. per capita. *NMFS Current Fishery Statistics No. 2001. September 2002.*

<sup>2</sup> Import values are reported as the customs value, generally defined as the price actually paid, or payable, for merchandise when sold for exportation to the United States, excluding U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise to the United States. This value approximates “f.a.s.” value “freight along side” and is the value properly attributed to products that are ready for export.

Similarly, while meeting the growing consumer demand for shrimp products, U.S. importers of shrimp have expanded significantly the level of domestic economic activity associated with the shrimp markets. Quantifying the current level of domestic economic activity generated by imports is the subject of this report.

Importers and exporters submit their transaction reports to the U.S. Customs Service using the international “Harmonized Commodity Description and Coding System” (HS).<sup>3</sup> Set forth in Table 1 is a summary of 2001 shrimp imports by HS subheading.

<b>TABLE 1: SUMMARY OF 2001 SHRIMP PRODUCTS IMPORTED BY U.S. BY PRODUCT TYPE</b>		
<b>PRODUCT</b>	<b>KILOS</b>	<b>DOLLARS</b>
SHRIMP BREADED FROZEN	3,221,235	\$25,402,790
SHRIMP CANNED	1,938,008	9,656,955
SHRIMP FROZEN IN ATC	147,880	699,599
SHRIMP FROZEN OTHER PREPARATIONS	67,098,559	597,349,970
SHRIMP OTHER PREPARATIONS	2,205,607	14,224,094
SHRIMP PEELED FRESH/DRIED/SALTED/BRINE	746,517	14,359,249
SHRIMP PEELED FROZEN	124,680,880	1,042,199,346
SHRIMP SHELL-ON FRESH/DRIED/SALTED/BRINE	790,581	7,160,462
SHRIMP SHELL-ON FROZEN < 15 ct.	21,184,472	324,720,485
SHRIMP SHELL-ON FROZEN 15/20 ct.	22,628,276	274,644,581
SHRIMP SHELL-ON FROZEN 21/25 ct.	21,428,483	235,601,361
SHRIMP SHELL-ON FROZEN 26/30 ct.	26,398,640	270,820,538
SHRIMP SHELL-ON FROZEN 31/40 ct.	35,708,647	327,594,055
SHRIMP SHELL-ON FROZEN 41/50 ct.	20,674,248	159,699,301
SHRIMP SHELL-ON FROZEN 51/60 ct.	18,608,369	128,165,734
SHRIMP SHELL-ON FROZEN 61/70 ct.	12,923,325	80,991,177
SHRIMP SHELL-ON FROZEN > 70 ct.	19,953,388	113,507,260
<i>Total For All Shrimp Products 2001</i>	400,337,115	\$3,626,796,957

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<sup>3</sup> The HS has been developed under the auspices of the World Customs Organization (WCO) located in Brussels. The WCO is an international organization consisting of representatives from about 150 countries. The U.S. Customs Service represents the U.S. in the WCO. The import volume and value data obtained by the U.S. Customs Service is also publicly reported by NMFS (1).

## Methodology

### *Economic Impact Analysis*

Economic impact analysis begins with introducing a change in the output of goods and uses the multiplier model to analyze the effects of that change on a specified geographic area's economic base. The standard input-output model estimates the direct, indirect, and in many cases, the induced economic implications of a basic economic activity, such as seafood processing. The secondary (*indirect*) and tertiary (*induced*) effects, 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 measures are then used as a basis for evaluating the total impact. In this report, as in the case of other seafood industry studies to date, estimates of the primary imported sales value by customs category were obtained and used as the base measure from which to begin estimation of the "direct impact" of imports on the domestic industry.

Starting with the direct purchases of imported shrimp by the domestic seafood industry, an estimate can then be made of the indirect impacts using information on the interactions with the other economic sectors that are, to varying extents, dependent upon the seafood-related industry.

For example, suppliers of materials to companies engaged in imported shrimp transportation, storage, processing and distribution depend upon the provision of imported shrimp. These impacts are referred to as the "indirect impacts." Such "indirectly" dependent sectors include other types of manufacturing such as "Paperboard and Containers" for necessary packaging materials and "Motor Freight and Transportation" for necessary hauling.

Ultimately, both the direct import activity and the resulting indirect activity generate increases in the overall level of employment and income. The extra income generated in

this way also leads to a tertiary level of economic impact through the higher level of household expenditures on goods and services. These effects are referred to as the “induced impacts” of the industry.

### **Economic Input-Output Model Application**

Most 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 or national economy. The research described herein accomplishes the latter task. Specifically, it assesses the economic significance of the processing and marketing of imported shrimp throughout the entire United States.

Because of the interrelationships among the many sectors of an economy, any new or induced basic economic activity will generate additional waves of economic impact. As noted above, the marketing of imported shrimp generates additional activity among suppliers of inputs, transportation industries, warehouses, and retailers. In other words, the sale of a pound of imported shrimp to a consumer generates activity not only for the retail market or restaurant, but also indirectly generates economic activity for cleaners, suppliers, and accountants whose employment supports the operation of the retail enterprise. Thus, the activities of imported shrimp 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, including not only the primary economic impact, but also the secondary and, in some analyses, tertiary impacts.

To perform the impact analysis, initial information on the level of primary, or “basic,” economic activity for the industry studied is first needed. For example, measuring the total impact of any product, good, or service first requires an estimate of the volume of the production of the goods.

Next, it is necessary to gather information on the interrelationships among the sectors of the geographic area’s economy in order to estimate the value of the inter-industry

“multipliers.” It is also necessary to have some understanding of which industries the subject sector buys its production inputs from and to which sectors its final products are sold. Understanding both the purchases of inputs and the sale of goods and services by the subject sector allows the “forward” and “backward” linking of the sector’s economic activity. This permits the tracing of expenditures as they “multiply” throughout the directly and indirectly impacted sectors.

To summarize, in addition to direct impacts, two other types of impacts may be estimated: (1) indirect impacts, which measure the change in output production in backward linked industries caused by the changing input needs of directly affected industries, and (2) induced impacts, which measure the change in household expenditure patterns caused by changes in household income. These impacts introduce the concept of multipliers that are in turn subdivided into two types: Type I and Type II multipliers. Type I multipliers measure the direct and indirect effects per dollar of direct effects:

$$\text{Type I Multipliers} = \text{Direct} + \text{Indirect/Direct}$$

These multipliers sum the results of several rounds of expenditures until, through “leaks” in the economy, no further expenditures occur. Type II multipliers, on the other hand, measure the overall effects, including the induced impacts per dollar of direct effects:

$$\text{Type II Multipliers} = \text{Direct} + \text{Indirect} + \text{Induced/Direct}$$

Type I and Type II multipliers can be expressed in terms of an array of economic indicators such as gross sales, gross industrial output, income, value added, and employment.

The principal distinction between the two types of multipliers is how the “household sector” is treated. The Type II model treats households as another industrial sector that has induced impacts on the economy. The Type I model (“closed model”), on the other hand, treats households as a final market sector, and the resulting multipliers sum the direct and indirect impacts only.

### **The Implan Model**

Many authoritative economic impact studies have used information from the Department of Agriculture's Regional Inter-Industry Impact Model (IMPLAN). This model was developed using a combination of data obtained through national surveys of inter-industry interaction, and by "sharing 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 United States.

From these government-derived inter-industry relationships, output, income and employment multipliers are estimated. An alternative approach to estimating these multipliers is to perform detailed surveys of individual firms in each region to directly assess the extent of the inter-region, inter-industry interaction. This approach can be time-consuming and is typically very costly. It is not used in this study.

Instead, in order to perform the analysis of the aggregate impacts of activity on the economy, published government estimates of the multipliers are used. The use of the "IMPLAN" multipliers for the present analysis is considered reasonable because they are the best currently available public information.

### ***Distribution Channels For Imported Shrimp In The U.S. Market***

Generally, domestic sales of imported shrimp are made first to regional distributors and wholesalers. In certain cases, the distributors and wholesalers are also the direct importers. In marketing seafood products, the first receivers/primary wholesalers add value to the imported products by sorting shipments into marketable quantities. Often the product is inventoried in cold storage facilities at the primary wholesaler's enterprise or in a local cold storage facility.

In the case of imported shrimp, the imported products are offloaded and transshipped mainly through major ports such as Los Angeles, New York, etc. Informed sources within the seafood marketing industry state that much of the imported shrimp retailed and

marketed through restaurants and foodservice enterprises is purchased from distributors. These distributors either import the product or purchase it from the primary wholesaler.

Subsequent secondary wholesaling of imported shrimp consists of distribution activities that link wholesale markets, primary wholesalers, and processors. Ultimately, these secondary receivers distribute the products to other local and regional distributors, grocery stores, restaurants, specialty seafood stores, and institutional food service establishments, such as airlines, cruise ship lines, caterers, etc.

It should be noted that, in many instances, retail stores and restaurants employ in-house buyers who perform the “secondary” wholesale function. Large retail supermarket chains, for example, have their own buyers, distribution centers, and transportation systems. Also, larger regional and national restaurant chains, institutional foodservice companies, and others may own or contract sole-source suppliers, store, and distribute predetermined quantities of product to member retail establishments.

Irrespective of whether the final distribution activities are conducted by vertically integrated warehouse operations, independent wholesalers or brokers, additional economic activity is generated throughout the entire process of imported shrimp distribution up to the point of consumer sale. For example, larger importer/distributors often conduct the “port activity” as a unique profit center, charging their costs for adding value to the downstream corporate entity — supermarket, restaurant, or other foodservice buyer.

Without exact knowledge about the quantities of shrimp flowing through each specific market channel, precise estimates of the value added at each stage of the shrimp product distribution chain cannot be made. In view of this, and for the sake of demonstrating aggregate levels of economic activity, the paths that imported shrimp products follow to reach final consumers have been assumed to be simple. For the purpose of this analysis, this basic model of distribution is sufficient. It should be recognized, however, that all imported shrimp products may not follow such a simple distribution pattern. (1) Of course, the more complicated and lengthy the paths of distribution, the more likely it

becomes that additional economic activity will be generated. Thus, our simple model, here again, is a conservative one.

### **Estimated Markup for Retailing Operations**

Consumers utilize imported shrimp either at home or in a restaurant or institutional feeding program. Imported shrimp consumed at home is, for the most part, obtained either in grocery stores or specialty seafood markets.

A wide range of marketing profit margins is associated with different types of retailers and restaurants. This diversity presents a difficulty in assigning margins, particularly at the retail level where different philosophies on seafood marketing and advertising campaigns impact cost structures.

In view of this, the estimates of markup used herein to make economic impact assessments have been obtained from the most relevant publicly available information on seafood industry profit margins compiled by NOAA's National Marine Fisheries Service. The information is updated annually along with other fisheries and seafood related statistics. (1) The most recent year for which this information is available is 2001.

To complete the modeling with available information of the economic activity arising from the shrimp importation, it is necessary first to recognize that the majority of all imported shrimp flow directly after importation to either food service establishments or retail food stores. Additionally, as shown in Table 2 below, it is assumed that only 50% of the shrimp imported as "headless shell on product" passes through an initial processing activity before reaching the final consumer. The consequence of these two assumptions is that the economic activity associated with this market and distribution channel is not as great as that which would arise from normal primary and secondary wholesaling and processing activities associated with most other seafood products. Without the ability to correctly track (and mark-up) exact values of imported products through the successive value added activities, the authors have assumed that, aside from a single processing step with 50% of the shell on imported shrimp, the retail margins are the only margins earned on the shrimp market activity. Further it is assumed, for lack of better information, that

the shrimp is consumed equally via food service and food stores,<sup>4</sup> even though some sources have anecdotally indicated that food service (which has a much higher average profit margin) accounts for more than 50% of shrimp market activity.

<b>Imported Shrimp Product Forms</b>	<b>Processing</b>	<b>Retail Food Service</b>	<b>Retail Food Stores</b>
Shell-on Frozen all counts	\$957,872,246	\$478,936,123	\$478,936,123
Peeled Frozen	0	\$521,099,673	\$521,099,673
Other Frozen	0	\$334,426,560	\$334,426,560
<b>Total</b>	\$957,872,246	\$1,334,462,356	\$1,334,462,356

Source: Table 1 above. Total value of imports in 2001 is allocated using the assumptions in the preceding paragraph.

It should be restated however, that it is the domestically performed value added functions of the market place that generate economic growth in the domestic economy from imported resources. The market values added along the chain of marketing and distribution are a function of the interdependency between market sectors. These interrelationships are what generate the additional economic activities along the chain from first receipt of the imported resource until it reaches the ultimate consumer.

Other than the published government associated, national level data, no specific information is currently available from importers, wholesalers, processors, retail or foodservice operators to further refine the study of the impact of imported shrimp on the U.S. economy. However, as with other seafood products, the probable significant variability among marketers, at both the wholesale and retail levels, in mark-up and value added, suggests that the aggregate nationwide data is the most dependable for the use in

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<sup>4</sup> See “Discussion of Biases in the Estimated Impacts.”

<sup>5</sup> “Margin,” or mark-up, is the difference between the price paid for the product by the consumer or wholesale purchaser and the wholesale or first-receipt price for an equivalent-weight product.

the IMPLAN modeling. Therefore, the published government estimates are used, as shown in Table 3.

## Findings

### *Economic Impact Estimates*

Rather than using the beginning gross sales amounts for imported shrimp (imported value + first processor, distributor or retailer margin), this analysis views the first direct impacts as being only the initial margin or *gross markup* of the imports. That is, the direct impact begins with the infusion of \$3.8 billion dollars in *net sales* (“output”) shown in Table 3 below, rather than the \$7.4 billion of *gross sales* at the first domestic marketing level. By viewing only the net marginal impact on the U.S. economy, a reasonable beginning point for estimating overall economic impact is established as shown in Table 3.

<b>TABLE 3: IMPORTED SHRIMP INITIAL MARKETING CHANNELS AND DIRECT OUTPUT —</b>			
<b>2001 <sup>6</sup></b>			
<b>Purchaser</b>	<b>Purchase Value</b>	<b>Gross Markup %<sup>7</sup></b>	<b>Initial Impact \$ (\$Thousands)</b>
Retail Food Stores	\$1,334,462,356	33.4%	\$445,710
Retail Food Service	\$1,334,462,356	182.4%	\$2,434,059
Processing.	\$957,872,246	99.0%	948,293
<b>Total Direct Output</b>	<b>\$3,626,796,958</b>	<b>N/A</b>	<b>\$3,828,062</b>

The initial value added of \$3.8 billion in customs districts, begins the chain of economic impact throughout the U.S. economy.

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<sup>6</sup> “Margin,” or mark-up, is the difference between the price paid for the product by the consumer or wholesale purchaser and the wholesale or first-receipt price for an equivalent-weight product.

<sup>7</sup> Gross mark up was obtained from “ Summary of 2001 Value Added, Margins, and Consumer Expenditures For Commercial Marine Fishery Products in the United States” Fisheries of the U.S. USDOC/NOAA/NMFS. (1)

The model translates value added and margins associated with successive sales of imported shrimp into employment, spending and personal income estimates. Because imported shrimp is often a part of a seafood wholesaler's, distributor's, or retail operator's activities, the number of full and part-time individuals impacted by the use of imported shrimp is difficult to estimate other than by using the IMPLAN impact model.

The IMPLAN-generated summary tables herein aggregate the model's 528 sector input-output table into terms of general industrial classifications. For example, the "Food Processing" industrial classification contains the basic seafood-processing sector referenced in this analysis. The input-output model utilizes a transactions table ("inverse coefficient table") that may be pictured as a table containing the 528 business sectors along both the rows and columns. This analysis uses the model's specific coefficient tables for the U.S. (2) Each column of the matrix lists the increases in the total output of the various sectors of the economy that would be required to deliver to final users an additional unit of the output of the sector (row) associated with that column, in this case, one dollar's worth of imported shrimp products.

The interdependence of all the sectors of the U.S. economy is so great that each sector contributes, while not directly, then indirectly, to the production of every commodity delivered to final users. In summary, one sector's sales are another sector's purchases, and so on.

### **Direct Economic Impacts**

The \$3.6 billion in shrimp imports into the U.S. custom ports during 2001 resulted in a significant chain of additional economic activities in the United States. Those resulting impacts are quantified by the input-output model and are summarized in Table 4.

<b>TABLE 4: DIRECT ECONOMIC IMPACT BY IMPACT MEASURE AND DIRECT SECTOR – 2001 ( \$ THOUSANDS &amp; # JOBS)</b>				
<b>U.S. Direct Impact</b>	<b>Industry Output \$</b>	<b>Total Income \$</b>	<b>Value Added \$</b>	<b>Employment</b>
Food Processing.	\$948,293	\$171,112	\$211,039	5,685
Retail Food Stores	445,710	264,992	405,367	11,355
Food Service	2,434,059	937,013	1,323,957	63,889
<b>TOTAL</b>	<b>\$3,828,062</b>	<b>\$1,373,117</b>	<b>\$1,940,363</b>	<b>80,930</b>

Following the chain of market distribution nationwide, the direct economic impacts continue to grow, resulting in estimated increases of industrial output in the U.S. of \$3.8 billion, income growth of \$1.37 billion, value added increases of \$1.9 billion; with associated employment of 80,930 directly related jobs necessary to provide this level of output.

Because much of the growth is attributed to impacts all along the marketing channel, direct impacts are felt in many industrial sectors nationwide, and when the indirect (supporting industry) impacts are measured, many of the 528 industrial sectors detailed in the IMPLAN model are impacted positively.

#### **Indirect Economic Impact**

While the final consumers are creating the demand for services of businesses directly involved in imported shrimp marketing, those directly impacted businesses are creating a “derived demand” for inputs into their operations from their support industries. As discussed above, the “backward’ linking of the direct sector by its purchases of productive inputs generates the economic multiplier effects.

The IMPLAN model has specifically quantified these indirect or multiplier coefficients for the U.S., thus generating the impact measures used for this analysis, which are shown in Table 5.

<b>TABLE 5: INDIRECT ECONOMIC IMPACT, BY IMPACT MEASURE – 2001</b>			
<b>Industry Output</b>	<b>Total Income \$</b>	<b>Value Added \$</b>	<b>Employment</b>
\$2,210,746,286	\$741,911,604	\$1,160,130,373	18,293

Nationwide, in 2001, the direct businesses generated multiple spending for other related businesses. These indirect impacts were an estimated additional \$2.2 billion in economic output, an additional \$741.9 million in income, and \$1.16 billion in value added by support businesses. Another 18,293 jobs are required to provide such a level of output.

**Induced Economic Impacts**

As shown above, the direct import activity, and the resulting indirect activity, generates significant increases in the general level of employment and income. The extra income generated in this way leads to a tertiary level of economic impact through the higher level of household expenditures on goods and services, most of which will be “respent” within the U.S. These effects are referred to as the “induced impacts” of the industry and are depicted in Table 6 below.

<b>TABLE 6: INDUCED ECONOMIC IMPACT, BY IMPACT MEASURE – 2001</b>			
<b>Industry Output</b>	<b>Total Income \$</b>	<b>Value Added \$</b>	<b>Employment</b>
\$3,815,740,002	\$1,343,816,725	\$2,253,851,799	39,247

**Total Economic Impacts**

Finally, by summing the direct, indirect, and induced impacts, the total economic activity associated with the direct industry is calculated.

<b>TABLE 7: TOTAL ECONOMIC IMPACT, BY IMPACT MEASURE – 2001</b>			
<b>Industry Output</b>	<b>Total Income \$</b>	<b>Value Added \$</b>	<b>Employment</b>
\$9,854,549,357	\$3,458,846,359	\$5,354,346,740	138,470

In summary, nationwide in 2001, the total economic activity generated by the marketing of imported shrimp products in the U.S. was an estimated \$9.854 billion in economic output, an additional \$3.458 billion in income, and \$5.354 billion in value added. A total of 138,470 jobs were needed to support that level of total output.

## Discussion of Biases in the Estimated Impacts

Any estimate of economic impacts is only as good as the basic information that is fed into the input-output model. In performing this research, the best available published information was used to characterize the level and mix of spending and employment generated in conjunction with the marketing and consumption of imported shrimp products in the national economy. The investigators have remained cautious not to artificially bias the estimated economic activity upward with unfounded assumptions. To maintain the integrity of this study, care has been taken to impart a downward bias to the estimated activity arising from the use of imported shrimp products in the U.S.

Examples of the caution taken in generating our estimates of the economic impact are given here:

- Without primary information on the exact pathway(s) of imported shrimp products through the diverse U.S. food marketing system, the simplifying assumptions used herein likely result in an understatement of the economic activity associated with the marketing of the imported shrimp. For example, the use of a single markup between the importation of the shrimp and delivery to the final consumer for 75% of the imported shrimp value is likely to understate the economic contributions and value added by additional primary and secondary wholesalers, processors and distributors. Without documented information on those linkages, the authors felt it best to assume that such additional margins were not applicable.
- The assumption that 50% of the retail sale of imported shrimp occurs at food stores may understate the final retail margins earned. Based upon NMFS market characterizations for all seafood products, retail trade from food service exceeded the retail trade from food stores in 2001.
- Finally, comparing results of this analysis with published information is useful for benchmarking the levels of activity projected herein. For example, during 2001 nationwide consumer expenditures for fishery products were estimated by NMFS to be just over \$55.0 billion (\$38.2 billion via retail food service and \$16.8 billion at retail stores). (1) The same source also reported the associated direct value added by

the U.S. industry was \$28.6 billion. In view of the fact that imported shrimp were an estimated 27% of the value of fishery inputs utilized throughout the domestic marketplace during 2001, the overall level of these results is considered to be reasonable.

## Glossary of Terms

Direct Impacts represent the initial change in the industry in question.

Indirect impacts are created through the sale of materials and services to the industry by other industries. They are changes in the inter-industry transactions as supplying industries respond to increased demands from the directly affected industries.

Induced impacts arise from the spending by employees in a primary (direct) or support (indirect) industry. The employee spending takes place throughout the studied region's economy through retail purchases, financing, and sales of added goods and services

Impact multiplier is a measure of the direct and indirect impacts resulting from purchases of raw materials and labor due to changes in final demand for a sector's products.

Value added provides a measure of the wages, interest, rent, and profit earned by employees and owners of firms within each sector. It represents the net contribution to domestic national product (GDP).

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