

## **Frequently Asked Question (FAQ) Sheet for the Value Added Table**

### **What is Value Added?**

Value added is an economic term to express the difference between the value of goods and the cost of materials or supplies that are used in producing them. It is a measure of economic activity which eliminates the duplication inherent in the sales value figure which results from the use of products of some establishments as materials or services by others. Value added is thus defined as the gross receipts of a firm minus the cost of goods and services purchased from other firms. Value added includes wages, salaries, interest, depreciation, rent, taxes and profit.

Using the commercial harvesting sector as an example, the following goods or services would be deducted from revenues to compute value added: fuel/oil, ice, crew groceries, miscellaneous purchases (hardware, gloves, rain gear, etc.), vessel and gear repair, dockage charges, bait, insurance and unloading, and accounting fees.

For the processing, wholesale, and retail sectors, value added is typically sales less the cost of purchased seafood products, containers and packaging materials, ingredients and other materials, various supplies, fuel and electric energy, transportation, insurance, repair and maintenance and miscellaneous service costs.

### **What does the Value Added Model do?**

The Value Added model estimates the economic impact of the commercial fishing industry on the U.S. economy in terms of sales and value added contribution. By tracing the flow of domestically harvested commercial fishery products and imported products from the point of first sale through the point of final sale to consumers (either through retail markets or restaurants), the model estimates consumer expenditures for fishery products, and allocates sales and value added between the sectors of the industry including fishermen, processors/wholesalers, distributors, retail markets and retail food service establishments. The model itself is a complex spreadsheet that links together each sector of the industry, relying on both primary data (e.g., on domestic landings, wholesale prices, imports and exports) and secondary data (e.g., Census of Manufacturers data on costs of production, Internal Revenue Service data on business income and expenses).

### **What's the difference between a mark-up (or margin) and value added?**

Margin or mark-up is the difference between the sales value and the purchase value of a product. For a fishery product the margin or mark-up is the difference between the price paid for the product by the consumer or wholesale purchaser and the dockside or wholesale value for an equivalent weight of the product. As an example, if a processor purchases a pound of salmon for \$0.50 and resells it to a wholesaler for \$1.00, the mark-up is \$0.50 or 100%. Presumably, part of the \$0.50 mark-up is used to purchase goods or services from other establishments, while the rest goes to the components of value added identified above. Value added is thus part of the mark-up or margin.

### **What is meant by 'value added as a percent of total mark-up'?**

Value added as a percent of total mark-up is the fraction of the entire mark-up that is attributable to wages, salaries, interest, depreciation, rent, taxes and profit in each sector. From the above example, if \$0.10 of the \$0.50 mark-up went towards purchasing goods and services from other establishments, then value added as a percent of total mark-up is 80% (\$0.40).

### **How are mark-ups calculated?**

In the harvest sector, an actual margin cannot be realized because the fishermen catch their fish without paying a purchase price. From an economic perspective, the entire price is margin or mark-up (i.e., the mark-up is 100%). The selling price at the harvesting level is the purchase price paid by processors and wholesalers. The selling price at the wholesale level also becomes the price paid to the harvester plus their margin or mark-up. In this way, the price paid by final consumers represent the cumulative margins applied by the various sectors as the fish moves from the fishermen to the retail outlet. The margin applied to fishery products by each sector includes all enhancements to the value of that product. The model uses both primary and secondary data sources to calculate the mark-up applied at each stage of the distribution process.

### **How is value added calculated?**

Information from the value added as a percent of total mark-up is used at each stage of the distribution process as seafood products move from one sector to the next in this model to estimate the value added by each sector. For example, primary processors purchase \$600 of seafood from the harvest sector and sell it for \$1200 to the secondary wholesale sector (for a mark-up of 100%). According to secondary data sources on the costs of production in the processing sector, we find that value added is 60% of the total mark-up (or 40% of the mark-up goes towards paying for goods and services from other establishments). This percent is multiplied by the total value of the mark-up (\$600), and it is estimated that value added by the processing sector is \$360 (60% of \$600). This process is repeated for each level of the distribution chain, with the value added by each sector isolated. Total value added to the U.S. economy by commercial fishery products is the sum of value added by each sector.

### **What is meant by ‘value of sales by sector’?**

Value of sales represents the annual value of seafood sales by the harvester, primary wholesaler/processor, secondary wholesaler, and retailer or restaurant. It is a measure of the gross revenues of that sector.

### **What data are used in the model?**

Two kinds of data are used in the Value Added model. First, each year, new information is entered in the model on: the volume and value of domestic commercial landings by species; prices of various processed products; wholesale prices of a variety of fishery products; and the value of exports and imports. These numbers are compiled from the annual publication Fisheries of the United States. Entry of these numbers provides an estimate of the current year’s commercial seafood industry’s contribution to the U.S. economy. These are considered primary data in the model.

The Value Added model also relies on secondary data, derived from sources like the Census of Manufacturers, the Internal Revenue Service’s Statistics of Income Bulletin, the National

Seafood Consumption Survey, etc. Information from these sources is used to model the underlying structure of the industries in each sector. As industries and the economy tend to change slowly over time, these data are not modified every year.

### **What is the distinction between the primary wholesale/processing sector and the secondary wholesale sector?**

Primary wholesalers are those wholesalers in the initial phase of distribution who typically purchase seafood from harvesters. Also included in this sector are all the processing activities which transform the harvested and imported fish into end products. To simplify the presentation, primary wholesalers are not considered separately from seafood products that are “processed.” For these products the economic activity is included within the economic impact estimates for the combined primary wholesale and processing sector. Thus seafood sold by harvesters is considered to be sold to the primary wholesale and processing level whereas imports are brought in at both the primary wholesale/processing and secondary wholesale sector.

Secondary wholesalers are those wholesalers who purchase from other wholesalers or processors and make final distribution to retailers or restaurants. This function can be thought of as the distribution level.

### **How are imports and exports treated in the model?**

Export of domestic landings may occur directly from the harvesting sector (as unprocessed fishery products) or after some form of processing. Unprocessed products that are exported directly from the harvesting sector are assumed to generate no additional margin and value added beyond those in the harvesting sector. This may slightly understate the economic activity attributable to these unprocessed exported products since a small mark-up and handling charges may actually be incurred. However, this additional mark-up is relatively minor and is not believed to significantly alter the model’s results. Primary information on annual exports is entered into the model: unprocessed fishery products are deducted from domestic production directly after harvest, while processed and non-edible products are deducted after going through the primary wholesale/processing sector.

For imports, the semi-processed and raw products are purchased by processors. Imported processed products, on the other hand, enter the marketing system when they are purchased by secondary wholesalers for direct distribution to retailers. In effect, unprocessed imports result in economic activity in the U.S. when they are processed and distributed to retail outlets. Imported processed fishery products generate significantly less economic activity because they only pass through one wholesale level before they are delivered to retailers. Since imported products are intermingled with and subsequently distributed through the same mechanisms as domestically produced products, their subsequent impacts are incorporated in the estimates of value added for all fishery products. Primary information on annual imports is entered into the model: unprocessed products are added to domestic production at the primary wholesale/processing sector; processed and non-edible products are added to the secondary wholesale sector.

### **How do you distinguish between retail trade from food service and retail trade from stores?**

Consumer purchases of fishery products are made primarily from two types of establishments: retail food stores and the food service industry. Retail stores include supermarkets, independent grocery stores and specialty seafood markets. Retail food service establishments include: full-menu restaurants with table service; limited-menu restaurants with table service; fast-food or carry out restaurants; and institutional and 'other' food preparation activities. Within this analysis, institutional food service operations include military food service; school, corporate and university cafeterias; meals served on airlines, off-site catering services and meals prepared by institutions such as hospitals.

Within the model, fishery products are distributed from the secondary wholesale sector to the two components of the retail sector based on secondary data on the ratio of at- versus away-from-home seafood consumption. For example, the model allocates 91.1% of canned seafood products to the retail store sector and 8.9% to the food service sector (i.e., the majority of canned seafood is eaten at home rather than in restaurants).

**Does the model account for changes in the operating costs of processors, wholesalers and retailers over time?**

The Value Added model was originally developed in 1988. Since that time, the secondary data used in the model have been updated twice, in 1992 and 1997, to reflect potential changes in the underlying structure of these industries. NMFS plans to continue updating these data every five years based on the continued availability of the secondary data sources.

**How does the measure of consumer expenditures on seafood compare to other publicly available estimates of retail seafood sales?**

The estimate of consumer expenditures on seafood may differ from other available estimates of seafood sales based on how each estimate is derived. For example, estimates based on scanner data (i.e., on items that have UPC codes and are scanned electronically at the supermarket) may not include information from small retail stores or specialty markets and may not always include data on fresh (as opposed to processed) seafood products. Similarly, data obtained from trade associations may not be representative of all retail markets or may not include sales from restaurants or other foodservice establishments. The Value Added model takes very accurate primary information about domestic landings, processed product and wholesale prices, and imports to estimate the final value of sales to consumers, but it should be recognized that there are many assumptions made in the model about the transformation and flow of products through the entire distribution process from harvest to final consumer. When making comparisons, it is important to understand the assumptions used in determining each estimate to evaluate why estimates might differ.

**Are aquaculture products accounted for in the Value Added model?**

To the extent that aquaculturally produced seafood is processed by U.S. processors, the contribution of aquaculture to economic activity is included in the estimates. It is important to note, however, that the value added by the *production* of aquaculture products is not included in the model – products only enter the model at the primary processing and secondary wholesale sectors. This is also true for imported aquaculture products that enter either of these sectors.

In addition, it is not possible to separate the contribution to value added by aquaculture products from commercially harvested products. Given the small value of aquaculturally produced marine seafood products relative to the commercial harvest (e.g., \$170 million of domestically produced marine aquaculture products versus \$3.4 billion in domestic landings in 1997), it is likely that the overall contribution to value added is minimal.

**How can I get more information?**

You are welcome to contact the Division of Fisheries Statistics and Economics, Office of Science and Technology, National Marine Fisheries Service, at (301)713-2328 if you have additional questions about the Value Added model.

Exhibit 2-1

SCHMATIC REPRESENTATION OF PROCESS USED TO DERIVE VALUE ADDED, MARGIN AND RETAIL SALES OF FISHERY PRODUCTS

