

# Economic Contributions of the Mississippi Seafood Industry by Major Species in 2015



## Introduction

Mississippi marine regulatory agencies needed updated estimates of the economic contributions of the seafood industry to effectively manage state marine resources. This need became very urgent after the massive damage from the natural and technological disasters that hit the seafood industry (Posadas 2007, 2008, 2010a, 2010b, 2015; Posadas and Posadas 2017a, 2017b). State regulatory agencies expressed a more vital need for additional information on the economic contributions of the seafood industry by sector and species landed, processed, distributed, and consumed in Mississippi. At a recent Producer Advisory Council Meeting (CREC 2017), the American Shrimp Processors Association requested updated estimates for the seafood industry by species. This up-to-date information is essential in their marketing and legislative campaigns.

The Mississippi seafood industry in 2009 contributed \$275.59 million to the total output of goods and services and provided 6,342 jobs in harvesting, processing, wholesaling, fish markets, and restaurants (NOAA Fisheries 2016). The commercial-harvesting sector contributed \$60.86 million, or 22.1 percent of the total output of the industry. The seafood-processing sector added \$78.91 million, or 28.6 percent of the total industry output. The seafood-wholesaling sector produced additional sales of \$10.45 million, or 3.8 percent of the whole industry. Fish markets generated a total of \$18.1 million, which was 6.6 percent of the entire industry. Seafood restaurants added \$107.28 million, or 38.9 percent of the total output.

Posadas (2014) first attempted to break down by major species the total estimates reported by NOAA Fisheries (2016) of the economic contributions of the Mississippi seafood industry in 2009. The Mississippi commercial shrimp industry in 2009 contributed a total of \$141.77 million to the state economy. This economic output created 3,091 jobs and generated total personal income of \$57.44 million. The commercial shrimp industry contribution to indirect business tax collections reached \$6.73 million.

The total output of economic goods produced by the Mississippi commercial oyster industry reached \$23.72 million. This economic output created 562 jobs and generated an annual income of \$9 million. The commercial oyster industry contributed about \$1.15 million to indirect business tax collections.

The Mississippi commercial crab industry in 2009 created a total economic output of \$8.18 million. This economic output created 244 jobs and generated total personal income of \$3.55 million. This industry contributed about \$0.52 million to indirect business tax collections.

The Mississippi commercial finfish industry in 2009 generated a total economic output of \$101.91 million. This economic output created 2,445 jobs and generated total personal income of \$57.44 million. The commercial finfish industry contribution to the indirect business tax collections reached \$4.68 million in 2009.

This Extension publication presents the techniques and estimates of the economic contribution of the Mississippi seafood industry by dominant species, sector, and type of contributions in 2015. The different sectors of the Mississippi seafood industry included are seafood harvesting, processing, wholesaling, importing, and retailing (Posadas 2014). The major seafood species covered are shrimp, oysters, crabs, and finfish. The types of economic contribution included are sales, job, income, and value-added.

## Estimating Economic Contributions by Major Species

Watson et al. (2007) defined economic contribution as the gross changes in a region's existing economy that can be attributed to a given industry, event, or policy. This publication calculates the total economic activities in four major seafood species that are harvested, processed, traded, and handled by the different sectors of the Mississippi seafood industry.

The NOAA fisheries model estimated four types of economic contributions: employment, income, total value added, and output or sales (NOAA Fisheries 2016, 2017b). Estimates of the indirect tax contribution of the

Mississippi seafood industry were not reported in the 2015 statewide results of the NOAA fisheries model. Economic contributions were determined by sector, including harvesting, processing, importing, wholesaling, and retailing. However, the estimates were not broken down by major seafood species. The 2015 statewide results of the NOAA fisheries economic model for Mississippi were used in determining the 2015 economic contributions of the state seafood industry by sector, dominant species, and type of contribution.

### ***Seafood Production Sectors***

The 2015 total economic contributions of Mississippi's commercial-harvesting and seafood-processing sectors (NOAA Fisheries 2017b) were broken down by major species using the 2015 ex-vessel, dockside or landing values, and processing-plant-gate or wholesale values. The 2015 Mississippi commercial harvesting contributions (NOAA Fisheries 2017b) were split according to the 2015 total state commercial landing values of each of the four major species. Shrimp landings contributed 18.4 percent of total dockside values in Mississippi in 2015. Oysters and crabs added 3.2 percent to total ex-vessel values. Finfish species contributed most of the total landings value (78.4 percent) in Mississippi in 2015.

The 2015 total contributions of Mississippi seafood processing (NOAA Fisheries 2017b) were divided according to the 2015 state total plant-gate values of the processed products for each of the four major species. Processed shrimp products contributed 59.4 percent of total plant-gate values of seafood processing in Mississippi in 2015. Oysters and crabs added 2.9 percent to total plant-gate values of processed seafood products. Oysters and crabs were combined in 2015 to prevent the disclosure of confidential data as required by law. Finfish species contributed 37.7 percent to the total plant-gate values in Mississippi in 2015.

### ***Seafood Distribution Sectors***

The 2015 total economic contributions of seafood wholesaling (NOAA Fisheries 2017b) were separated according to the expenditure shares of each of the four major species reported by these sectors in a survey of January–December 2011 transactions by Mississippi seafood wholesalers conducted in 2012–2013 (Posadas 2014). The 2011 wholesale sales values were the only data available for wholesaler seafood transactions broken down by major species in Mississippi. Among seafood

wholesalers, shrimp products made up 74.8 percent of their total purchases of seafood products in Mississippi in 2011. Oysters and crabs added 16.8 percent to total seafood purchases by seafood wholesalers in 2011. Finfish species contributed 8.3 percent more to their total wholesale seafood purchases in Mississippi in 2011.

NOAA Fisheries (2017b) combined the contributions of seafood restaurants and seafood and fish markets under seafood retailing in 2015. Total seafood expenditures on individual species by seafood restaurants and seafood and fish markets were merged under seafood retailing based on the 2011 survey of Mississippi seafood and fish markets and the 2009 survey of Mississippi seafood restaurants (Posadas et al. 2016). The 2015 seafood retailing contributions (NOAA Fisheries 2017b) were divided according to the expenditure shares of each of the four major species reported by seafood restaurants and seafood markets.

Results of the 2010–2011 survey of Mississippi seafood restaurants for transactions in January–December 2009 were the only available seafood expenditure data for these establishments broken down by major seafood species. Results of the survey of January–December 2011 transactions by Mississippi seafood markets were the only expenditure data on seafood transactions broken down by major species. These survey data, however, are now outdated and any further breakdown of economic impact estimation will require updated expenditure surveys of the breakdown of wholesale, retail, and restaurant sales transactions of seafood products in the state.

Among seafood-retailing establishments only, shrimp products made up 49.3 percent of their total purchases of seafood products in Mississippi. Oysters and crabs added 12.2 percent to combined seafood purchases by seafood markets and restaurants. Finfish species contributed 38.5 percent more to their total seafood purchases in Mississippi.

Shrimp purchases were assumed to consist mostly of Mississippi seafood imports in 2015. Seafood importers were not included in the 2011 survey of seafood wholesalers and retailers. It is important to point out the lack of data on seafood importers, as well as the old survey data on seafood wholesalers, fish markets, and seafood restaurants. These data limitations reduce the accuracy of the estimates of the breakdown of total economic contributions by sector, major seafood species, and type of contribution.

**Table 1. Economic contributions of the Mississippi seafood industry by sector and type, 2015.**

Sector	Sales contributions (M\$)	Employment contributions (Jobs)	Income contributions (M\$)	Value-added contributions (M\$)
Commercial harvesters	107.1	1,995	33.7	48.4
Seafood processors and dealers	138.0	1,646	54.6	68.4
Seafood importers	0.5	2	0.1	0.2
Seafood wholesalers and distributors	19.0	184	6.7	8.5
Seafood retailing	200.8	5,664	90.9	114.3
<b>Total</b>	<b>465.4</b>	<b>9,491</b>	<b>186.0</b>	<b>239.7</b>

Source: NOAA Fisheries (2016, 2017b)

## Estimates of Economic Contributions by Major Species

### *Total Economic Contributions of the Seafood Industry*

Table 1 shows the NOAA Fisheries (2017b) estimates of the total economic contributions of the entire Mississippi seafood industry by sector and type in 2015. Commercial harvesting contributed \$107.1 million, which was 23 percent of total sales contribution. The seafood-processing sector added sales of \$138 million—29.6 percent of the total sales contributions. Seafood imports added \$0.5 million—0.1 percent of the total sales contribution. Seafood wholesaling produced sales of \$19 million—4.1 percent of the total sales contribution. Seafood retailing generated \$200.8 million in sales—43.1 percent of the total sales contribution. In 2015, the entire Mississippi seafood industry contributed a total of \$465.4 million to the state economy, created 9,491 jobs, and generated total personal income of \$186 million.

### *Economic Contributions of the Shrimp Industry*

Table 2 shows the breakdown of the contributions of the Mississippi commercial shrimp industry to the state economy by sector and type in 2015. The entire shrimp industry contributed a total of \$215.4 million, created 4,276 jobs, and generated total personal income of \$88.5 million.

Processing (38 percent), retailing (45.9 percent), landings (9.1 percent), and wholesaling (6.6 percent) were the largest components of the state shrimp industry in 2015.

### *Economic Contributions of the Oyster and Crab Industry*

Oysters and crabs were combined in 2015 to prevent the disclosure of confidential data reported by seafood processors in Mississippi. Table 3 presents the breakdown of the contributions of the Mississippi commercial oyster and crab industry to the state economy by sector and type in 2015. The combined oyster and crab industry added a total of \$35 million, created 831 jobs, and generated total personal income of \$14.8 million. Retailing (69.7 percent), processing (11.4 percent), harvesting (9.7 percent), and wholesaling (9.1 percent) were the biggest parts of the state oyster and crab industry in 2015.

### *Economic Contributions of the Finfish Industry*

Table 4 illustrates the breakdown of the contributions of the Mississippi commercial-finish industry to the state economy by sector and type in 2015. The entire finfish industry contributed a total of \$215 million, created 4,384 jobs, and generated total personal income of \$82.6 million. Harvesting (39.1 percent), retailing (36 percent), and processing (24.2 percent) were the largest sectors of the state finfish industry in 2015.

**Table 2. Economic contributions of Mississippi shrimp industry by sector and type, 2015.**

Sector	Sales contributions (M\$)	Job contributions	Income contributions (M\$)	Value-added contributions (M\$)
Commercial harvesters	19.7	367	6.2	8.9
Seafood processors and dealers	81.9	977	32.4	40.6
Seafood importers	0.5	2	0.1	0.2
Seafood wholesalers and distributors	14.2	138	5.0	6.3
Seafood retailing	99.0	2,792	44.8	56.4
<b>Total</b>	<b>215.4</b>	<b>4,276</b>	<b>88.5</b>	<b>112.4</b>

**Table 3. Economic contributions of Mississippi oyster and crab industry by sector and type, 2015.**

<b>Sector</b>	<b>Sales contributions (M\$)</b>	<b>Job contributions</b>	<b>Income contributions (M\$)</b>	<b>Value-added contributions (M\$)</b>
Commercial harvesters	3.4	63	1.1	1.5
Seafood processors and dealers	4.0	48	1.6	2.0
Seafood importers	0.0	0	0.0	0.0
Seafood wholesalers and distributors	3.2	31	1.1	1.4
Seafood retailing	24.4	689	11.1	13.9
<b>Total</b>	<b>35.0</b>	<b>831</b>	<b>14.8</b>	<b>18.9</b>

**Table 4. Economic contributions of Mississippi finfish industry by sector and type, 2015.**

<b>Sector</b>	<b>Sales contributions (M\$)</b>	<b>Job contributions</b>	<b>Income contributions (M\$)</b>	<b>Value-added contributions (M\$)</b>
Commercial harvesters	83.9	1,564	26.4	37.9
Seafood processors and dealers	52.0	621	20.6	25.8
Seafood importers	0.0	0	0.0	0.0
Seafood wholesalers and distributors	1.6	15	0.6	0.7
Seafood retailing	77.4	2,183	35.0	44.1
<b>Total</b>	<b>215.0</b>	<b>4,384</b>	<b>82.6</b>	<b>108.5</b>

## Summary and Implications

This publication presents the most recent estimates of the economic contributions of the Mississippi seafood industry. The estimates include four types of economic contributions: employment, income, total value added, and output or sales. Economic contributions were broken down by sector, including harvesting, processing, importing, wholesaling, and retailing. However, estimates were not itemized by major seafood species.

The 2015 total economic contributions of the Mississippi commercial-harvesting and seafood-processing sectors were broken down by major species using the 2015 ex-vessel, dockside or landing values, and processing-plant-gate or wholesale values. The 2015 Mississippi commercial harvesting contributions were split according to the 2015 total state commercial landing values of each of the four major species. The 2015 total contributions of Mississippi seafood processing were divided according to the 2015 state total plant-gate values of the processed products for each of the four major species.

The 2015 total economic contributions of seafood wholesaling were separated according to the expenditure shares on each of the four major species reported in the 2011 survey of Mississippi seafood wholesalers. The total seafood expenditures by seafood restaurants and seafood and fish markets were merged under seafood retailing based on the 2011 survey of Mississippi seafood and fish markets and the 2009 survey of Mississippi seafood restaurants. Results of these seafood establishment surveys, however, are now outdated and any further breakdown of future economic estimates will require updated establishment surveys of the expenditures by wholesalers, retailers, and restaurants on seafood products.

The entire Mississippi seafood industry contributed a total \$465.4 million to the state economy in 2015, created 9,491 jobs, and generated total personal income of \$186 million. Commercial harvesting contributed \$107.1 million, representing 23 percent of total sales contribution. Seafood processing added sales of \$138 million, consisting 29.6 percent of the total. Seafood imports added \$0.54 million, adding 0.1 percent to the total. Seafood wholesaling produced sales of \$19.029 million, adding 4.1 percent of the total. Seafood retailing generated \$200.8 million in sales, contributing 43.1 percent more to the total.

Mississippi's commercial shrimp industry contributed a total of \$215.4 million to the state economy in 2015, created 4,276 jobs, and generated total personal income of \$88.5 million. Processing (38 percent), retailing (45.9 percent), landings (9.1 percent), and wholesaling (6.6 percent) were the largest components of the state shrimp industry in 2015.

Oyster and crab data were combined in 2015 to prevent the disclosure of confidential data reported by seafood processors in Mississippi. The economic contribution of the Mississippi commercial oyster and crab industry to the state economy in 2015 reached \$35 million, created 831 jobs, and generated total personal income of \$14.8 million. Retailing (69.7 percent), processing (11.4 percent), harvesting (9.7 percent), and wholesaling (9.1 percent) were the biggest parts of the state oyster and crab industry in 2015.

Economic contributions of the Mississippi commercial finfish industry to the state economy in 2015 amounted to \$215 million, created 4,384 jobs, and generated total personal income of \$82.6 million. Harvesting (39.1 percent), retailing (36 percent), and processing (24.2 percent) were the largest sectors of the state finfish industry in 2015.

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