

An Assessment of the Principal Commercial Fisheries in Lake Borgne and Its Environs

This report describes commercial fishing production and activity in a portion of coastal Louisiana using data collected by the Louisiana Department of Wildlife and Fisheries (L.D.W.F.). It is centered on Lake Borgne, a saline water body on the Louisiana coast, east of New Orleans and south of Lake Pontchartrain with an opening to the Gulf of Mexico. It has in recent years been the source of increased seafood harvests and the subject of continued interest by commercial fishers and other stakeholders in the region.

Data

This report uses commercial seafood landings data collected from commercial fishers and seafood purchasers and processed by the L.D.W.F. Trip Ticket Section. By law, whenever commercial seafood is harvested and brought to the “point of first sale”, the purchaser (usually a dock, dealer, or processor) is required to complete and submit a record of the transaction, called a “trip ticket”, detailing many variables including the date of the transaction, the species sold, the volume and value, and the numerical code of the “area fished”, the region in which most of the trip’s seafood harvesting activity took place. The trip ticket areas are identified on maps produced by the L.D.W.F., based on sub-basins defined by the Louisiana Department of Environmental Quality. Data are available from 2000 through 2017.

This study will assess data from Trip Ticket Area 420¹ (Figure 1), a portion of the Louisiana coast including Lake Borgne, adjoining marshland, and portions of Mississippi Sound. It presents summary statistics for the principal types of seafood harvested within the area: blue crabs, brown shrimp, white shrimp, oysters, and saltwater fish other than menhaden. Statistics for other types of seafood that may be present in the area, such as menhaden and freshwater fish, are not reported to avoid violations of L.D.W.F. confidentiality standards².

An appendix to this report presents commercial fishing statistics for selected types of seafood in two trip ticket areas adjacent to Area 420: Trip Ticket Area 416 along its northwestern edge and Trip Ticket Area 419 in its southwestern edge. Each of these areas incorporate water bodies that were intended as shipping channel between the New Orleans area and the Gulf of Mexico.

Combined Volume & Dockside Value of Commercial Seafood Landings from Trip Ticket Area 420

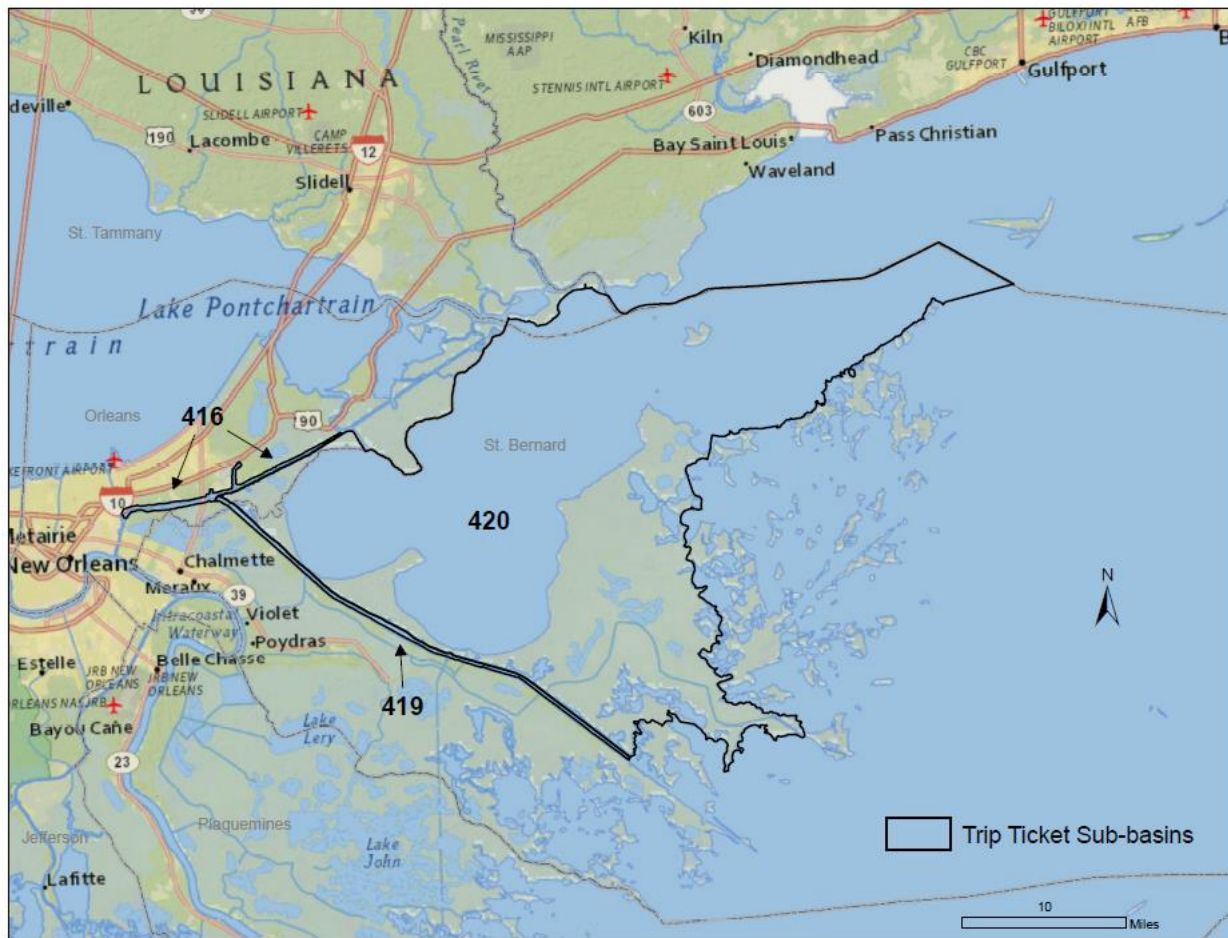
In this report, the terms “combined volume” and “combined dockside value” refer to the summation of the volume and dockside value of five seafood types: blue crabs, brown shrimp, white shrimp, oysters, and saltwater fish other than menhaden. Thus, the term combined seafood landings is not synonymous with total seafood landings because it does not include species which may have few purchasers (such as menhaden) or harvesters in the area (such as crawfish or freshwater fish³).

¹ In 2010, two subareas (42001 and 42002) were created within Area 420. Values reported for these two subareas are included in statistics presented for Area 420.

² The L.D.W.F. may not release trip ticket statistics if the number of fishers or purchasers reporting in a particular instance is less than three.

³ The “combined seafood landings” for Area 420 thus do not include the relatively small amount of freshwater fish landings that were occasionally reported within the area, such as the 2,376 pounds in 2016 and 3,746 pounds in 2017. Area freshwater fish landings during the 2000-2017 study period peaked at 7,633 pounds in 2013. In three years, freshwater fish landings were zero. In five years, confidentiality standards prevented the reporting of data.

Figure 1. Location of Trip Ticket Area 420 plus Adjoining Areas 416 and 419



The combined volume of seafood landings from Area 420 fell from more than 3.0 million pounds per year in the first three years of the study period (2000-2017) to a minimum of 649,913 pounds in 2006 (Table 1). Landings subsequently rebounded, reaching 4.2 million pounds in 2014, 5.4 million pounds in 2015, and 6.1 million pounds in 2017.

The real dockside value of combined seafood landings from Trip Ticket Area 420 climbed from \$5.3 million⁴ in 2000 to \$8.3 million in 2002 then dipped to \$1.1 million in 2006 (Table 2). Real values fluctuated between \$2.9 million and \$7.5 million over the next six years then climbed to \$13.6 million in 2016 and \$13.4 million in 2017.

At the beginning of the study period in 2000, saltwater fish (other than menhaden) accounted for roughly two-thirds of the volume of combined seafood landings from the area. Brown shrimp and white shrimp combined represented 17 percent; oysters, 11 percent; and blue crabs, 5.9 percent of combined seafood volume.

By the end of the study period, the relative mix of seafood types had changed. In 2017, saltwater fish accounted for only 5.2 percent of combined seafood volume from Trip Ticket Area 420 while blue crabs accounted for 67.0 percent, shrimp for 10.2 percent, and oysters for 17.4 percent.

⁴ Dockside values included in the text of this report are expressed in constant, inflation-adjusted 2017 dollars.

Table 1. Combined[†] Volume of Commercial Seafood Landings from Trip Ticket Area 420 and Percentage Derived from Specified Seafood Types

Year	Volume (Pounds)	Blue Crabs	Brown Shrimp	White Shrimp	Oysters	Saltwater Fish
2000	3,245,576	5.9%	12.9%	4.1%	11.0%	66.2%
2001	3,201,628	8.9%	45.2%	3.0%	32.4%	10.5%
2002	3,867,349	5.1%	30.1%	7.9%	47.9%	9.1%
2003	2,622,182	14.3%	20.6%	13.3%	41.1%	10.6%
2004	2,401,045	16.5%	23.9%	18.1%	37.2%	4.3%
2005	1,235,462	29.6%	18.9%	2.1%	44.8%	4.6%
2006	649,913	56.9%	9.5%	10.0%	20.8%	2.9%
2007	1,681,507	53.1%	11.0%	9.3%	23.4%	3.2%
2008	3,250,586	26.6%	3.6%	15.1%	49.9%	4.7%
2009	3,625,708	36.0%	6.9%	8.5%	39.7%	8.9%
2010	1,569,309	53.5%	4.1%	14.8%	21.1%	6.5%
2011	2,734,621	63.1%	15.5%	12.4%	6.1%	2.9%
2012	3,200,459	68.7%	12.3%	10.8%	6.4%	1.9%
2013	3,464,862	60.1%	2.5%	7.4%	26.3%	3.7%
2014	4,188,466	55.8%	17.8%	10.4%	11.8%	4.3%
2015	5,387,809	70.0%	5.4%	2.0%	16.5%	6.2%
2016	5,586,337	54.8%	4.4%	11.3%	22.6%	6.9%
2017	6,060,627	67.0%	6.2%	4.2%	17.4%	5.2%

[†] The summation of commercial landings of blue crabs, brown shrimp, white shrimp, oysters, and saltwater fish other than menhaden.

Table 2. Combined[†] Real Dockside Value of Commercial Seafood Landings from Trip Ticket Area 420 and Percentage Derived from Specified Seafood Types

Year	Real Dockside Value*	Blue Crabs	Brown Shrimp	White Shrimp	Oysters	Saltwater Fish
2000	\$5,278,163	5.0%	18.9%	6.3%	20.1%	49.7%
2001	\$6,683,997	6.3%	43.0%	3.0%	44.4%	3.4%
2002	\$8,342,747	2.9%	23.9%	6.8%	63.4%	3.0%
2003	\$5,581,098	8.0%	13.5%	9.7%	64.4%	4.4%
2004	\$4,828,261	8.1%	11.1%	14.9%	63.7%	2.1%
2005	\$2,951,639	14.9%	10.7%	1.6%	70.9%	1.9%
2006	\$1,118,533	30.4%	6.3%	10.6%	51.0%	1.7%
2007	\$2,870,586	28.6%	7.1%	8.7%	54.1%	1.5%
2008	\$7,498,345	10.6%	2.3%	10.2%	76.2%	0.7%
2009	\$7,490,032	14.5%	3.7%	5.1%	73.5%	3.2%
2010	\$3,071,885	32.0%	4.4%	15.0%	45.3%	3.4%
2011	\$3,755,729	45.1%	9.4%	21.7%	21.8%	1.9%
2012	\$4,489,592	48.8%	16.4%	13.9%	19.7%	1.3%
2013	\$8,150,490	38.3%	1.9%	6.7%	51.3%	1.8%
2014	\$9,931,706	41.3%	15.4%	9.9%	31.4%	2.0%
2015	\$12,340,523	45.2%	2.2%	2.2%	47.3%	3.1%
2016	\$13,580,836	30.2%	1.6%	8.6%	56.2%	3.5%
2017	\$13,424,397	39.6%	4.1%	3.1%	50.4%	2.8%

† The summation of commercial landings of blue crabs, brown shrimp, white shrimp, oysters, and saltwater fish other than menhaden.
 * Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.

Percentage of Statewide Landings Harvested from Trip Ticket Area 420

In recent years, Area 420 has become the source of an increasing portion of Louisiana’s total commercial blue crab landings. In every year prior to 2006, blue crab landings from Area 420 were one percent or less of the volume (Table 3) and dockside value (Table 4) of the state’s blue crab landings. The percentage climbed to 9.1 percent of the volume and 9.3 percent of the value in 2015. The area was the source of 9.3 percent of the volume and 9.8 percent of the dockside value of Louisiana’s statewide landings of blue crab in 2017.

Though the hundreds of thousand or even millions of pounds of shrimp landings were attributed to Area 420, the area produced a relatively small share of the state’s total shrimp landings. Since 2003, the area was the source of less than two percent of the volume of brown shrimp and one percent of the volume of white shrimp harvested in a given year in Louisiana.

The share of the state’s oyster landings that were harvested within Area 420 fluctuated widely during the study period, varying from a period minimum of 1.3 percent of the state total in 2006 to 13.1 percent of the total in 2002. In 2017, oysters harvested from the area represented 8.0 percent of the total volume of oysters landed in Louisiana.

Table 3. Percentage of the Volume of Statewide Landings of Specified Seafood Types Derived from Trip Ticket Area 420

Year	Blue Crabs	Brown Shrimp	White Shrimp	Oysters	Saltwater Fish
2000	0.4%	0.7%	0.2%	2.8%	8.7%
2001	0.7%	2.3%	0.2%	6.9%	1.8%
2002	0.4%	2.2%	0.6%	13.2%	1.9%
2003	0.8%	0.9%	0.5%	7.9%	1.4%
2004	0.9%	1.0%	0.6%	6.4%	0.5%
2005	1.0%	0.6%	0.0%	4.6%	0.5%
2006	0.7%	0.1%	0.1%	1.2%	0.1%
2007	1.9%	0.4%	0.2%	3.1%	0.4%
2008	1.9%	0.4%	0.7%	12.3%	1.5%
2009	2.4%	0.7%	0.4%	9.6%	3.0%
2010	2.7%	0.4%	0.4%	4.8%	1.2%
2011	3.9%	1.1%	0.6%	1.5%	0.7%
2012	4.7%	1.4%	0.5%	1.8%	0.5%
2013	5.3%	0.2%	0.4%	8.0%	1.1%
2014	5.4%	1.7%	0.6%	3.9%	1.5%
2015	9.1%	0.9%	0.2%	6.0%	2.8%
2016	7.5%	1.0%	0.8%	10.1%	3.4%
2017	9.3%	1.5%	0.4%	7.9%	3.0%

Table 4. Percentage of the Value of Statewide Landings of Specified Seafood Types Derived from Trip Ticket Area 420

Year	Blue Crabs	Brown Shrimp	White Shrimp	Oysters	Saltwater Fish
2000	0.6%	0.7%	0.2%	2.8%	5.9%
2001	1.0%	2.3%	0.1%	6.9%	0.7%
2002	0.6%	2.4%	0.5%	13.1%	0.7%
2003	1.0%	1.1%	0.5%	8.2%	0.8%
2004	1.0%	1.0%	0.6%	6.9%	0.3%
2005	1.3%	0.6%	0.0%	5.1%	0.2%
2006	0.9%	0.2%	0.1%	1.3%	0.1%
2007	2.0%	0.4%	0.2%	3.3%	0.2%
2008	2.0%	0.6%	0.6%	12.4%	0.3%
2009	2.5%	1.0%	0.4%	9.6%	1.3%
2010	2.9%	0.6%	0.5%	5.0%	0.9%
2011	4.2%	0.9%	0.8%	1.8%	0.4%
2012	4.6%	2.0%	0.5%	1.9%	0.3%
2013	5.7%	0.3%	0.4%	8.8%	0.7%
2014	5.9%	1.7%	0.6%	4.4%	0.9%
2015	9.3%	0.9%	0.3%	6.5%	1.9%
2016	8.0%	1.1%	1.0%	10.6%	2.2%
2017	9.8%	2.5%	0.4%	8.0%	2.0%

Commercial Blue Crab Landings from Trip Ticket Area 420

In 2017, Area 420 produced 4.06 million pounds of blue crabs (Table 5) with a dockside value of \$5.3 million. There were 168 commercial fishers who harvested crabs within the area who completed 5,723 trips with blue crab landings. The estimated volume per trip in 2017, 709.5 pounds per trip, was the highest estimate for this variable in the area since 2009.

To facilitate the succinct description of changes in harvest over time, this report includes measures of central tendency (averages) and dispersion (standard deviation) for landings variables within three sub-periods of six years each within the 18-year time frame: the early third (2000-2005), the middle third (2006-2011), and the recent third (2012-2017). The delineation of these sub-periods bear no rigorous statistical meaning other than reporting convenience.

Average annual landings of blue crabs harvested in Area 420 were 301,099 pounds and \$367,835 in the early third of the study period (Table 6). The averages were higher in the later periods: 999,791 pounds (\$953,682) in the middle third and 2.9 million pounds (\$4.1 million) in the recent third.

Table 5. Trip Ticket Commercial Landings Statistics for Blue Crabs from Trip Ticket Area 420

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	190,078	\$190,503	\$263,860	89	810	\$1.39	234.7
2001	283,469	\$311,620	\$421,999	119	928	\$1.49	305.5
2002	196,585	\$182,916	\$243,962	85	592	\$1.24	332.1
2003	374,037	\$339,874	\$444,439	103	1,013	\$1.19	369.2
2004	396,866	\$307,752	\$391,667	72	1,075	\$0.99	369.2
2005	365,558	\$357,734	\$441,083	57	853	\$1.21	428.6
2006	369,649	\$284,496	\$340,325	34	432	\$0.92	855.7
2007	892,486	\$705,257	\$821,787	82	1,276	\$0.92	699.4
2008	865,855	\$695,566	\$794,903	69	1,392	\$0.92	622.0
2009	1,304,341	\$957,649	\$1,086,165	89	1,801	\$0.83	724.2
2010	840,207	\$877,677	\$983,447	123	1,414	\$1.17	594.2
2011	1,726,209	\$1,544,348	\$1,695,466	158	2,982	\$0.98	578.9
2012	2,197,354	\$2,031,303	\$2,189,716	137	3,683	\$1.00	596.6
2013	2,082,237	\$2,941,743	\$3,120,780	123	3,764	\$1.50	553.2
2014	2,337,333	\$3,934,719	\$4,100,593	179	4,893	\$1.75	477.7
2015	3,771,719	\$5,412,976	\$5,580,639	162	5,757	\$1.48	655.2
2016	3,063,469	\$4,023,327	\$4,095,698	162	5,359	\$1.34	571.6
2017	4,060,269	\$5,314,050	\$5,314,050	168	5,723	\$1.31	709.5

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.

Table 6. Summary Statistics for Blue Crabs Landings from Trip Ticket Area 420

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	1,406,540	\$1,796,143	111.7	2430.4	\$1.20	537.6
Standard Deviation	1,219,504	1,775,345	41.5	1,865.3	0.25	163.7
Early Third: 2000-2005						
Average	301,099	\$367,835	87.5	878.5	\$1.25	339.9
Standard Deviation	83,871	82,553	20	156	0.16	60.4
Middle Third: 2006-2011						
Average	999,791	\$953,682	92.5	1549.5	\$0.96	679.1
Standard Deviation	422,775	405,688	39	762	0.10	95.0
Recent Third: 2012-2017						
Average	2,918,730	\$4,066,913	155.2	4,863.2	\$1.40	594.0
Standard Deviation	775,648	1,173,862	19	855.0	0.23	73.9

Commercial Brown Shrimp Landings from Trip Ticket Area 420

In 2017, Area 420 produced 373,248 pounds of brown shrimp (Table 7) with a dockside value of \$554,937. Seventy-two shrimpers completed 537 trips with brown shrimp landings in the area that year. The year's estimated volume per trip (695.1 pounds per trip) was the lowest in four years.

During the early third of the study period, average annual brown shrimp landings in the Area 420 were 729,924 pounds and \$1.2 million (Table 8). Average annual landings were lower at 183,267 pounds (\$202,768) in the middle third and 355,701 pounds (\$277,788) in the recent third.

Commercial White Shrimp Landings from Trip Ticket Area 420

Approximately one-quarter million pounds of white shrimp with a dockside value of \$410,938 were landed from the Area 420 in 2017 (Table 9). Seventy-eight commercial fishers completed 521 trips with white shrimp landings that year.

In the early third of the study period, average annual white shrimp landings (Table 10) were 223,219 pounds (\$400,842). The average annual landings were 265,427 (\$464,227) in the middle third and 337,534 (\$667,217) in the recent third.

Commercial Oyster Landings from Trip Ticket Area 420

In 2017, Trip Ticket Area 420 oyster landings were 1.05 million pounds with a dockside value of \$6.77 million (Table 11). Sixty-five commercial fishermen reported oyster landings from the area during 1,852 trips.

On a year-to-year basis oyster production within the area was considerably variable, falling below 200,000 pounds twice and exceeding one million pounds four times. Average annual landings of oysters from the area were 962,312 pounds (\$3.0 million) in the early third, 681,129 pounds (\$2.6 million) in the middle third, and 801,789 pounds (\$4.7 million) in the recent third of the study period (Table 12).

Commercial Saltwater Fish Landings from Trip Ticket Area 420

Commercial landings of all species of saltwater fish other than menhaden from the entire Area 420 in 2017 were 318,053 pounds and \$373,442 (Table 13). There were 18 commercial fishers who reported landings of some sort of saltwater fish during 279 trips in the area.

Other than 2000, landings of saltwater fish landings were less than 390,000 pounds in a year. Average annual landings of saltwater fish were 545,653 pounds in the early third, 122,327 in the middle third, and 234,339 in the recent third of the study period (Table 14).

Table 7. Trip Ticket Commercial Landings Statistics for Brown Shrimp from Trip Ticket Area 420

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	418,193	\$721,885	\$999,864	209	793	\$2.39	527.4
2001	1,446,904	\$2,120,376	\$2,871,435	405	1,231	\$1.98	1,175.4
2002	1,165,656	\$1,494,104	\$1,992,751	336	901	\$1.71	1,293.7
2003	541,462	\$577,221	\$754,809	183	454	\$1.39	1,192.6
2004	573,592	\$422,511	\$537,718	128	411	\$0.94	1,395.6
2005	233,736	\$255,388	\$314,892	64	260	\$1.35	899.0
2006	61,450	\$59,066	\$70,657	30	76	\$1.15	808.6
2007	185,172	\$175,554	\$204,561	63	234	\$1.10	791.3
2008	117,290	\$152,997	\$174,848	21	123	\$1.49	953.6
2009	248,736	\$246,991	\$280,137	81	372	\$1.13	668.6
2010	63,662	\$120,209	\$134,696	41	128	\$2.12	497.4
2011	423,294	\$320,359	\$351,707	111	445	\$0.83	951.2
2012	392,241	\$681,501	\$734,648	97	484	\$1.87	810.4
2013	87,899	\$149,531	\$158,632	25	132	\$1.80	665.9
2014	745,346	\$1,468,801	\$1,530,720	141	504	\$2.05	1,478.9
2015	292,292	\$262,927	\$271,070	69	286	\$0.93	1,022.0
2016	243,180	\$212,893	\$216,723	69	220	\$0.89	1,105.4
2017	373,248	\$554,937	\$554,937	72	537	\$1.49	695.1

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip is the quotient of pounds of landings divided by (the number of) trips.

Table 8. Summary Statistics for Brown Shrimp Landings from Trip Ticket Area 420

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	422,964	\$675,267	119.2	422	\$1.48	940.7
Standard Deviation	363,757	730,309	102.6	293	0.46	279.8
Early Third: 2000-2005						
Average	729,924	\$1,245,245	220.8	675	\$1.63	1,080.6
Standard Deviation	429,585	900,939	116.9	333	0.47	290.2
Middle Third: 2006-2011						
Average	183,267	\$202,768	57.8	230	\$1.30	778.5
Standard Deviation	126,096	92,230	31.1	137	0.41	159.5
Recent Third: 2012-2017						
Average	355,701	\$577,788	78.8	360.5	\$1.51	963.0
Standard Deviation	200,776	471,406	35.0	155.2	0.45	280.8

Table 9. Trip Ticket Commercial Landings Statistics for White Shrimp from Trip Ticket Area 420

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	132,114	\$239,352	\$331,521	123	295	\$2.51	447.8
2001	94,944	\$147,144	\$199,263	71	177	\$2.10	536.4
2002	303,834	\$423,205	\$564,447	140	404	\$1.86	752.1
2003	349,219	\$414,404	\$541,899	156	528	\$1.55	661.4
2004	433,401	\$566,969	\$721,564	107	388	\$1.66	1,117.0
2005	25,803	\$37,598	\$46,358	21	65	\$1.80	397.0
2006	65,136	\$98,973	\$118,395	36	133	\$1.82	489.7
2007	156,458	\$213,204	\$248,432	44	244	\$1.59	641.2
2008	491,015	\$667,828	\$763,204	93	353	\$1.55	1,391.0
2009	309,922	\$333,551	\$378,314	80	376	\$1.22	824.3
2010	232,201	\$410,675	\$460,166	65	274	\$1.98	847.4
2011	337,828	\$744,042	\$816,848	90	621	\$2.42	544.0
2012	345,673	\$578,119	\$623,204	112	495	\$1.80	698.3
2013	255,878	\$511,663	\$542,803	64	407	\$2.12	628.7
2014	433,668	\$943,336	\$983,103	124	582	\$2.27	745.1
2015	105,149	\$264,288	\$272,475	44	363	\$2.59	289.7
2016	629,646	\$1,150,091	\$1,170,778	93	818	\$1.86	769.7
2017	255,187	\$410,938	\$410,938	78	521	\$1.61	489.8

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip is the quotient of pounds of landings divided by (the number of) trips.

Table 10. Summary Statistics for White Shrimp Landings from Trip Ticket Area 420

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	275,393	\$510,762	85.6	391	\$1.91	681.7
Standard Deviation	156,998	291,790	36.0	180	0.36	254.5
Early Third: 2000-2005						
Average	223,219	\$400,842	103.0	310	\$1.91	652.0
Standard Deviation	147,354	231,165	45.4	153	0.32	240.3
Middle Third: 2006-2011						
Average	265,427	\$464,227	68.0	334	\$1.76	789.6
Standard Deviation	136,141	254,065	21.8	151	0.38	299.6
Recent Third: 2012-2017						
Average	337,534	\$667,217	85.8	531.0	\$2.04	603.6
Standard Deviation	164,362	314,185	27.3	147.2	0.33	167.7

Table 11. Trip Ticket Commercial Landings Statistics for Oysters from Trip Ticket Area 420

Year	Volume (Pounds*)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	358,224	765,788	\$1,060,673	72	697	\$2.96	514.0
2001	1,038,759	2,189,449	\$2,964,974	119	1,813	\$2.85	573.0
2002	1,850,828	3,964,698	\$5,287,887	135	2,731	\$2.86	677.7
2003	1,078,866	2,749,786	\$3,595,785	144	2,106	\$3.33	512.3
2004	893,561	2,418,015	\$3,077,336	113	1,624	\$3.44	550.2
2005	553,636	1,697,609	\$2,093,139	64	1,229	\$3.78	450.5
2006	134,990	476,965	\$570,564	41	329	\$4.23	410.3
2007	392,871	1,331,584	\$1,551,603	56	625	\$3.95	628.6
2008	1,622,890	4,996,797	\$5,710,415	114	2,312	\$3.52	701.9
2009	1,438,721	4,856,858	\$5,508,649	156	2,666	\$3.83	539.7
2010	330,552	1,240,681	\$1,390,198	94	1,098	\$4.21	301.0
2011	166,751	746,440	\$819,481	32	403	\$4.91	413.8
2012	204,226	819,658	\$883,580	54	478	\$4.33	427.3
2013	911,612	3,943,682	\$4,183,697	61	1,766	\$4.59	516.2
2014	492,371	2,990,704	\$3,116,782	24	630	\$6.33	781.5
2015	886,765	5,657,348	\$5,832,580	132	2,219	\$6.58	399.6
2016	1,261,892	7,492,771	\$7,627,550	50	2,156	\$6.04	585.3
2017	1,053,870	6,771,030	\$6,771,030	65	1,852	\$6.42	569.0

* Landings are reported in pound of oyster meat.
 * Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip is the quotient of pounds of landings divided by (the number of) trips.

Table 12. Summary Statistics for Oyster Landings from Trip Ticket Area 420

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	815,077	\$3,446,996	84.8	1,485	\$4.34	530.7
Standard Deviation	503,399	2,174,623	40.3	788	1.21	116.9
Early Third: 2000-2005						
Average	962,312	\$3,013,299	107.8	1,700	\$3.20	546.3
Standard Deviation	473,560	1,302,492	30.0	642	0.34	70.0
Middle Third: 2006-2011						
Average	681,129	\$2,591,818	82.2	1,239	\$4.11	499.2
Standard Deviation	609,605	2,159,712	43.8	923	0.43	137.8
Recent Third: 2012-2017						
Average	801,789	\$4,735,870	64.3	1,516.8	\$5.72	546.5
Standard Deviation	352,926	2,290,304	33.0	700.2	0.90	125.1

Table 13. Trip Ticket Commercial Landings Statistics for Saltwater Fish from Trip Ticket Area 420

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	2,146,967	\$1,893,216	\$2,622,245	123	550	\$1.22	3,903.6
2001	337,552	\$167,128	\$226,326	75	225	\$0.67	1,500.2
2002	350,447	\$190,216	\$253,700	65	219	\$0.72	1,600.2
2003	278,598	\$186,719	\$244,166	54	226	\$0.88	1,232.7
2004	103,625	\$78,556	\$99,976	26	169	\$0.96	613.2
2005	56,729	\$45,554	\$56,168	14	89	\$0.99	637.4
2006	18,688	\$15,543	\$18,593	10	27	\$0.99	692.1
2007	54,520	\$37,935	\$44,203	21	93	\$0.81	586.2
2008	153,538	\$48,106	\$54,976	16	106	\$0.36	1,448.5
2009	323,988	\$208,753	\$236,768	31	363	\$0.73	892.5
2010	102,687	\$92,259	\$103,377	31	174	\$1.01	590.2
2011	80,539	\$65,789	\$72,226	32	101	\$0.90	797.4
2012	60,965	\$54,215	\$58,443	23	107	\$0.96	569.8
2013	127,237	\$136,283	\$144,577	33	144	\$1.14	883.6
2014	179,747	\$192,397	\$200,508	32	201	\$1.12	894.3
2015	331,883	\$372,229	\$383,759	28	287	\$1.16	1,156.4
2016	388,149	\$461,781	\$470,088	28	350	\$1.21	1,109.0
2017	318,053	\$373,442	\$373,442	18	279	\$1.17	1,140.0

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip is the quotient of pounds of landings divided by (the number of) trips.

Table 14. Summary Statistics for Saltwater Fish Landings from Trip Ticket Area 420

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	300,773	\$314,641	36.7	206	\$0.94	1,124.9
Standard Deviation	463,831	574,072	26.7	123	0.22	747.2
Early Third: 2000-2005						
Average	545,653	\$583,764	59.5	246	\$0.91	1,581.2
Standard Deviation	724,727	914,681	35.4	144	0.18	1,106.8
Middle Third: 2006-2011						
Average	122,327	\$88,357	23.5	144	\$0.80	834.5
Standard Deviation	99,257	71,230	8.5	107	0.22	295.3
Recent Third: 2012-2017						
Average	234,339	\$271,803	27.0	228.0	\$1.13	958.9
Standard Deviation	118,807	146,614	5.2	85.0	0.08	206.4

Conclusion

Trip ticket data demonstrated growth and variation in commercial seafood landings reported as harvested from Area 420. Combined seafood landings dropped from 3.2 million pounds (\$5.3 million) in 2000 to 649,913 pounds (\$1.1 million) in 2006 and later rose from 1.6 million pounds (\$3.1 million) to 6.1 million pounds (\$13.4 million) in 2017.

The mix of landings of different seafood types harvested from Area 420 has also changed. Following a sharp drop from the previous year, landings of both blue crab and oysters in 2009 began a sharp climb from 840,207 pounds and 330,552 pounds, respectively, to 4.1 million pounds and 1.1 million pounds, respectively, in 2017. The area accounted for less than one half of one percent of statewide blue crab landings in 2000 and 9.3 percent of statewide landings of the species in 2017.

Many commercial fishermen and other stakeholders in the fishery have expressed a view that fisheries productivity within Lake Borgne may be connected to recent changes in the operation of the adjacent Mississippi River Gulf Outlet (MRGO). This report includes trip ticket statistics for a trip ticket area consistent with a large portion of MRGO (and another nearby water channel) in an appendix for the benefit of the curious with no inference regarding possible connections between changes in MRGO and seafood landings from Lake Borgne and its environs.

Many ecological, environmental, economic, and demographic factors besides the closure of MRGO may have affected the production, availability, and landings of different seafood species within Area 420. This research presents the available statistics but offers no explanations behind the observed fluctuations.

Appendix. Trip Ticket Statistics for the Sections of the Intracoastal Waterway and the Mississippi River Gulf Outlet

This appendix presents statistics for commercial seafood landings for two trip ticket areas adjacent to Trip Ticket Area 420: Area 416 on the northwestern side of Lake Borgne and Area 419 on its southern side (Figure 1, Page 2). Each area was designed as a shipping channel from the Gulf to the New Orleans area.

L.D.W.F. confidentiality standards prohibit the publication of data for several seafood types within these areas. Between the two areas, there are three instances of data withholdings for brown shrimp, one instance for white shrimp, and eight instances for saltwater fish other than menhaden.

Trip Ticket Area 416: Intracoastal Waterway

Trip Ticket Area 416 encompasses a portion of the Intracoastal Waterway from Chef Menteur Pass to the Inner Harbor Navigation Canal. Between 2009 and 2015, blue crabs accounted for a majority of the volume of seafood landings harvested from the area. In 2016 and 2017, shrimp comprised the majority of area landings. No oyster landings were reported within the area between 2006 and 2017.

Blue Crab Landings from Trip Ticket Area 416

In 2017, commercial blue crab landings harvested from Area 416 were 654,996 and \$980,700 (Table 15). Fifty-one commercial fishers completed 1,356 trips that year. A rough estimate of catch per unit of effort, estimated pounds per trip, the quotient of volume divided by the number of trips, was 483.0 pounds per trip.

During the early third of the eighteen year study period (2000-2005), the average annual landings from Area 416 were 70,294 pounds and \$96,380 (Table 16). Large average annual landings were observed in the middle third (183,691 pounds and \$179,203) and the recent third (549,365 pounds and \$862,223) of the study period.

Brown Shrimp Landings from Trip Ticket Area 416

Commercial landings of brown shrimp from Area 416 were 613,328 pounds and \$664,331 in 2017, the highest volume and second highest real dockside value for this area in the study period (Table 17). A period high 82 shrimpers completed a period high 493 trips with brown shrimp landings from the area.

Average annuals landings for Area 416 were higher in the later parts of the time period than in the earlier parts. The area's annual averages were 76,808 pounds in the early third, 100,977 pounds in the middle third (2006-2011) and 183,869 pounds in the recent third (2012-2017) of the study period (Table 18).

White Shrimp Landings from Trip Ticket Area 416

For Area 416, white shrimp landings climbed from 4,256 pounds in 2000 to 93,757 pounds in 2007, spiked to 477,517 pounds in 2008, but then slipped to 9,858 pounds in 2010 (Table 19). Volume thereafter climbed to a period high of 715,966 pounds in 2016. Landings in 2017 (during which 81 commercial fishers completed 459 trips with white shrimp landings) were 407,739 pounds.

Table 15. Trip Ticket Commercial Landings Statistics for Blue Crabs from Trip Ticket Area 416

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	24,095	\$26,866	\$37,211	17	150	\$1.54	160.6
2001	41,570	\$44,777	\$60,638	29	180	\$1.46	230.9
2002	21,552	\$24,742	\$32,999	24	94	\$1.53	229.3
2003	236,785	\$245,782	\$321,400	35	602	\$1.36	393.3
2004	49,388	\$52,794	\$67,189	25	182	\$1.36	271.4
2005	48,372	\$47,722	\$58,841	15	137	\$1.22	353.1
2006	9,551	\$8,512	\$10,182	10	24	\$1.07	398.0
2007	141,172	\$81,338	\$94,778	15	272	\$0.67	519.0
2008	87,643	\$52,961	\$60,524	11	200	\$0.69	438.2
2009	201,322	\$184,726	\$209,517	18	485	\$1.04	415.1
2010	197,678	\$223,111	\$249,999	34	395	\$1.26	500.5
2011	464,779	\$410,091	\$450,219	50	1,174	\$0.97	395.9
2012	491,515	\$492,701	\$531,125	41	1,293	\$1.08	380.1
2013	315,597	\$414,318	\$439,533	40	875	\$1.39	360.7
2014	665,925	\$1,221,583	\$1,273,081	72	1,843	\$1.91	361.3
2015	611,935	\$1,110,556	\$1,144,954	78	1,775	\$1.87	344.8
2016	556,220	\$789,739	\$803,945	57	1,456	\$1.45	382.0
2017	654,996	\$980,700	\$980,700	51	1,356	\$1.50	483.0

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.

Table 16. Summary Statistics for Blue Crabs Landings from 416

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	267,783	\$379,269	34.6	694.1	\$1.30	367.6
Standard Deviation	234,961	398,964	19.9	607.1	0.33	92.7
Early Third: 2000-2005						
Average	70,294	\$96,380	24.2	224.2	\$1.41	273.1
Standard Deviation	75,246	101,399	7	172	0.11	78.7
Middle Third: 2006-2011						
Average	183,691	\$179,203	23.0	425.0	\$0.95	444.5
Standard Deviation	141,936	146,720	14	365	0.21	48.5
Recent Third: 2012-2017						
Average	549,365	\$862,223	56.5	1,433.0	\$1.53	385.3
Standard Deviation	120,208	303,992	14	322.1	0.29	45.5

Table 17. Trip Ticket Commercial Landings Statistics for Brown Shrimp from Trip Ticket Area 416

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	9,239	\$17,385	\$24,079	17	63	\$2.61	146.6
2001	279,081	\$492,425	\$666,847	105	523	\$2.39	533.6
2002	19,707	\$28,891	\$38,533	22	53	\$1.96	371.8
2003	23,041	\$15,469	\$20,228	5	282	\$0.88	81.7
2004	42,489	\$29,807	\$37,934	11	307	\$0.89	138.4
2005	87,293	\$98,888	\$121,928	59	218	\$1.40	400.4
2006	54,288	\$41,176	\$49,256	6	192	\$0.91	282.8
2007	201,348	\$198,707	\$231,540	36	341	\$1.15	590.5
2008	‡	‡	‡	‡	‡	‡	‡
2009	80,947	\$69,885	\$79,264	18	245	\$0.98	330.4
2010	99,244	\$129,341	\$144,928	45	210	\$1.46	472.6
2011	69,057	\$62,670	\$68,802	11	227	\$1.00	304.2
2012	64,892	\$72,877	\$78,560	11	234	\$1.21	277.3
2013	50,758	\$84,346	\$89,480	8	227	\$1.76	223.6
2014	44,790	\$73,976	\$77,095	9	223	\$1.72	200.9
2015	43,202	\$39,871	\$41,106	8	226	\$0.95	191.2
2016	286,244	\$227,026	\$231,110	61	281	\$0.81	1,018.7
2017	613,328	\$664,331	\$664,331	82	493	\$1.08	1,244.1

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.
 ‡ Data are withheld to maintain confidentiality standards.

Table 18. Summary Statistics for Brown Shrimp Landings from 416

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	121,703	\$156,766	30.2	256	\$1.36	400.5
Standard Deviation	147,518	195,583	29.2	116	0.53	301.6
Early Third: 2000-2005						
Average	76,808	\$151,592	36.5	241	\$1.69	278.8
Standard Deviation	93,914	232,946	35.2	160	0.68	165.5
Middle Third: 2006, 2007, 2009-2011						
Average	100,977	\$114,758	23.2	243	\$1.10	396.1
Standard Deviation	52,302	66,649	14.9	52	0.20	117.7
Recent Third: 2012-2017						
Average	183,869	\$196,947	29.8	280.7	\$1.26	526.0
Standard Deviation	210,523	217,497	30.1	97.0	0.36	433.9

Table 19. Trip Ticket Commercial Landings Statistics for White Shrimp from Trip Ticket Area 416

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	4,256	\$6,251	\$8,658	10	71	\$2.03	59.9
2001	2,206	\$4,879	\$6,607	6	11	\$3.00	200.5
2002	15,470	\$22,675	\$30,243	9	178	\$1.96	86.9
2003	8,164	\$9,556	\$12,495	10	10	\$1.53	816.4
2004	64,343	\$70,224	\$89,372	27	66	\$1.39	974.9
2005	62,127	\$76,602	\$94,450	15	57	\$1.52	1,089.9
2006	44,651	\$83,632	\$100,044	18	59	\$2.24	756.8
2007	93,757	\$112,687	\$131,306	23	144	\$1.40	651.1
2008	477,517	\$641,933	\$733,611	81	371	\$1.54	1287.1
2009	50,586	\$44,025	\$49,933	16	70	\$0.99	722.7
2010	9,858	\$21,111	\$23,655	9	26	\$2.40	379.2
2011	41,463	\$60,503	\$66,424	21	69	\$1.60	600.9
2012	48,210	\$52,128	\$56,193	18	52	\$1.17	927.1
2013	7,531	\$17,667	\$18,742	6	24	\$2.49	313.8
2014	28,347	\$49,989	\$52,096	9	26	\$1.84	1,090.3
2015	18,459	\$24,456	\$25,213	10	60	\$1.37	307.7
2016	715,966	\$940,051	\$956,961	96	536	\$1.34	1,335.8
2017	407,739	\$550,443	\$550,443	81	459	\$1.35	888.3

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.

Table 20. Summary Statistics for White Shrimp Landings from 416

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	116,703	\$167,025	25.8	127	\$1.73	693.9
Standard Deviation	195,611	270,233	27.7	155	0.51	386.3
Early Third: 2000-2005						
Average	26,094	\$40,304	12.8	66	\$1.91	538.1
Standard Deviation	26,593	37,307	6.9	56	0.54	431.8
Middle Third: 2006-2011						
Average	119,639	\$184,162	28.0	123	\$1.70	733.0
Standard Deviation	161,916	248,128	24.1	116	0.48	276.0
Recent Third: 2012-2017						
Average	204,375	\$276,608	36.7	192.8	\$1.59	810.5
Standard Deviation	268,256	357,433	37.1	217.0	0.45	381.5

Saltwater Fish Landings from Trip Ticket Area 416

Landings of saltwater fish other than menhaden from Area 416 were erratic, ranging from 633 pounds in 2004 to 257,635 pounds in 2000 (Table 19). Thrice within the 18 year study period, the number of commercial fishermen with saltwater fish landings fell below three, precluding the publication of data.

In 2016 (the most recent year for which data might be released), commercial landings of saltwater fish (other than menhaden) was 8,820 pounds with a real dockside value of \$9,259 (Table 20). Seven commercial fishermen completed nine trips with saltwater fish landings.

Table 19. Trip Ticket Commercial Landings Statistics for Saltwater Fish from Trip Ticket Area 416

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value[*]	Fishers	Trips	Real Value per Pound[*]	Pounds per Trip[*]
2000	257,635	\$200,613	\$277,864	25	60	\$1.08	4,293.9
2001	45,419	\$21,219	\$28,735	9	27	\$0.63	1,682.2
2002	33,612	\$19,508	\$26,018	14	40	\$0.77	840.3
2003	75,150	\$53,180	\$69,541	15	44	\$0.93	1,708.0
2004	633	\$1,494	\$1,901	3	16	\$3.00	39.6
2005	1,808	\$3,775	\$4,655	3	21	\$2.57	86.1
2006	‡	‡	‡	‡	‡	‡	‡
2007	8,643	\$5,833	\$6,797	7	7	\$0.79	1,234.7
2008	3,323	\$2,452	\$2,802	4	5	\$0.84	664.6
2009	31,113	\$25,808	\$29,272	6	58	\$0.94	536.4
2010	12,213	\$8,743	\$9,797	8	14	\$0.80	872.4
2011	9,566	\$4,587	\$5,036	9	18	\$0.53	531.4
2012	41,506	\$35,506	\$38,275	3	40	\$0.92	1,037.7
2013	‡	‡	‡	‡	‡	‡	‡
2014	14,966	\$14,618	\$15,234	10	21	\$1.02	712.7
2015	25,560	\$31,206	\$32,173	7	33	\$1.26	774.5
2016	8,820	\$9,095	\$9,259	7	9	\$1.05	980.0
2017	‡	‡	‡	‡	‡	‡	‡

^{*} Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
^{*} Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.
[‡] Data are withheld to maintain confidentiality standards.

Table 20. Summary Statistics for Saltwater Fish Landings from 416

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	37,998	\$37,157	8.7	28	\$1.14	1,066.3
Standard Deviation	61,932	66,690	5.6	17	0.67	975.9
Early Third: 2000-2005						
Average	69,043	\$68,119	11.5	35	\$1.50	1,441.7
Standard Deviation	88,146	96,377	7.7	15	0.93	1,439.3
Middle Third: 2007-2011						
Average	12,972	\$10,741	6.8	20	\$0.78	767.9
Standard Deviation	9,520	9,544	1.7	19	0.14	264.2
Recent Third: 2012, 2013-2017						
Average	22,713	\$23,735	6.8	25.8	\$1.06	876.2
Standard Deviation	12,393	11,879	2.5	11.8	0.12	136.0

Trip Ticket Area 419: Mississippi River-Gulf Outlet

Trip Ticket Area 419 encompasses most of the Mississippi River Gulf Outlet (MRGO). Seafood abundance or productivity in this waterway may have been affected by the construction of a closure structure in 2009. Blue crabs accounted for the majority of the area's landings in every year between 2014 and 2017. According to trip ticket statistics, the area produced no commercial oyster landings between 2010 and 2017.

Blue Crab Landings from Trip Ticket Area 419

The volume of commercial blue crab landings reported from Area 419 was 285,099 pounds in 2017 with a dockside value of \$462,020 (Table 21). There were 15 commercial crabbers who made 416 trips with blue crab landings from within the area.

The average annual landings from Area 419 in the early third of the study period (Table 22) was 66,196 pounds (\$54,465). Average annual landings were higher in the middle third (175,641 pounds and \$210,612) and the recent third (216,010 pounds and \$399,666) of the study period.

Brown Shrimp Landings from Trip Ticket Area 419

Statistics for brown shrimp landings from Area 419 cannot be published due to L.D.W.F. confidentiality standards. In 2016, the area was the reported source of 21,619 pounds of brown shrimp with a real dockside value of \$184,478 (Table 23).

The volume of brown shrimp landings from Area 419 were usually higher at the beginning of the study period than at its end. Average annual landings were 169,092 pounds in the early third of the study period, 118,508 pounds in the middle third, and 77,510 pounds in the recent third (Table 24).

There were several instance of peculiarly high estimates of real value per pound of brown shrimp in this area during the study period, such as \$12.35 per pound in 2013 and \$8.53 per pound in 2016.

Table 21. Trip Ticket Commercial Landings Statistics for Blue Crabs from Trip Ticket Area 419

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	16,562	\$11,112	\$15,391	14	52	\$0.93	318.5
2001	42,633	\$26,149	\$35,411	28	129	\$0.83	330.5
2002	44,713	\$23,064	\$30,762	7	99	\$0.69	451.6
2003	87,017	\$48,213	\$63,047	24	167	\$0.72	521.1
2004	132,034	\$79,132	\$100,710	11	198	\$0.76	666.8
2005	74,218	\$66,072	\$81,466	6	162	\$1.10	458.1
2006	165,862	\$167,029	\$199,807	16	220	\$1.20	753.9
2007	265,260	\$272,080	\$317,037	20	437	\$1.20	607.0
2008	192,987	\$195,287	\$223,177	20	306	\$1.16	630.7
2009	239,467	\$242,399	\$274,929	21	371	\$1.15	645.5
2010	71,027	\$100,918	\$113,079	11	124	\$1.59	572.8
2011	119,245	\$123,554	\$135,644	13	216	\$1.14	552.1
2012	119,203	\$137,296	\$148,003	10	281	\$1.24	424.2
2013	123,849	\$222,823	\$236,384	9	228	\$1.91	543.2
2014	144,714	\$311,001	\$324,112	19	357	\$2.24	405.4
2015	330,362	\$646,722	\$666,753	14	421	\$2.02	784.7
2016	292,831	\$550,815	\$560,723	12	443	\$1.91	661.0
2017	285,099	\$462,020	\$462,020	15	416	\$1.62	685.3

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.

Table 8. Summary Statistics for Blue Crabs Landings from 419

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	152,616	\$221,581	15.0	257.1	\$1.30	556.2
Standard Deviation	92,419	181,308	5.8	122.6	0.46	132.7
Early Third: 2000-2005						
Average	66,196	\$54,465	15.0	134.5	\$0.84	457.8
Standard Deviation	37,222	29,980	8	48	0.14	117.9
Middle Third: 2006-2011						
Average	175,641	\$210,612	16.8	279.0	\$1.24	627.0
Standard Deviation	66,616	71,729	4	105	0.16	65.1
Recent Third: 2012-2017						
Average	216,010	\$399,666	13.2	357.7	\$1.82	584.0
Standard Deviation	88,223	181,138	3	78.9	0.32	138.8

Table 23. Trip Ticket Commercial Landings Statistics for Brown Shrimp from Trip Ticket Area 419

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	176,630	\$287,439	\$398,124	63	277	\$2.25	637.7
2001	340,835	\$453,796	\$614,536	96	332	\$1.80	1,026.6
2002	101,815	\$109,004	\$145,383	45	156	\$1.43	652.7
2003	147,413	\$134,257	\$175,563	71	203	\$1.19	726.2
2004	78,768	\$54,238	\$69,028	28	119	\$0.88	661.9
2005	‡	‡	‡	‡	‡	‡	‡
2006	182,474	\$232,189	\$277,753	29	139	\$1.52	1,312.8
2007	170,479	\$266,208	\$310,194	38	154	\$1.82	1,107.0
2008	106,422	\$217,888	\$249,006	19	106	\$2.34	1,004.0
2009	149,355	\$236,897	\$268,688	36	189	\$1.80	790.2
2010	34,603	\$187,983	\$210,637	15	232	\$6.09	149.2
2011	67,714	\$297,583	\$326,703	12	312	\$4.82	217.0
2012	64,805	\$217,474	\$234,434	16	216	\$3.62	300.0
2013	15,314	\$178,225	\$189,072	3	259	\$12.35	59.1
2014	96,394	\$302,392	\$315,139	14	224	\$3.27	430.3
2015	189,419	\$310,704	\$320,328	26	267	\$1.69	709.4
2016	21,619	\$181,218	\$184,478	5	164	\$8.53	131.8
2017	‡	‡	‡	‡	‡	‡	‡

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.
 ‡ Values for 2005 and 2017 were withheld to maintain confidentiality standards.

Table 24. Summary Statistics for Brown Shrimp Landings from 419

2000-2016	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	121,504	\$268,067	32.3	209	\$3.46	619.7
Standard Deviation	79,571	119,492	24.8	66	3.03	367.1
Early Third: 2000-2004						
Average	169,092	\$280,527	60.6	217	\$1.51	741.0
Standard Deviation	92,420	199,702	23.1	78	0.48	146.0
Middle Third: 2006-2011						
Average	118,508	\$273,830	24.8	189	\$3.07	763.4
Standard Deviation	54,022	38,230	10.1	68	1.75	438.6
Recent Third: 2012-2016						
Average	77,510	\$248,690	12.8	226.0	\$5.89	326.1
Standard Deviation	63,299	59,039	8.3	36.7	3.96	231.3

White Shrimp Landings from Trip Ticket Area 419

White shrimp landings from Area 419 rose from 37,832 pounds in 2001 to 700,176 pounds in 2008 and dropped to 5,095 pounds in 2011 (Table 25). Area landings climbed thereafter to 73,251 pounds in 2016. L.D.W.F. confidentiality standards prohibit the publication of white shrimp landings statistics for Area 419 in 2017.

Saltwater Fish Landings from Trip Ticket Area 419

The landings of all species of saltwater fish (other than menhaden) from Area 419 also rose between 2000 and 2008 (from 39,596 pounds to 492,604 pounds) followed by a notable drop over the next few years, reaching 27,053 pounds in 2010 (Table 25). Saltwater fish landings from the area rose afterward to 134,514 pounds in 2014 and 91,364 in 2016. Confidentiality standards prohibit the publication of saltwater fish landings statistics for Area 419 in 2017 and for four earlier years within the study period.

Table 25. Trip Ticket Commercial Landings Statistics for White Shrimp from Trip Ticket Area 419

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	58,397	\$103,712	\$143,649	29	117	\$2.46	499.1
2001	37,832	\$53,467	\$72,405	8	54	\$1.91	700.6
2002	77,541	\$92,535	\$123,418	30	137	\$1.59	566.0
2003	76,244	\$65,894	\$86,167	37	154	\$1.13	495.1
2004	74,124	\$94,038	\$119,679	38	121	\$1.61	612.6
2005	42,895	\$49,685	\$61,261	16	27	\$1.43	1,588.7
2006	173,887	\$184,560	\$220,778	34	160	\$1.27	1,086.8
2007	155,410	\$161,318	\$187,973	25	128	\$1.21	1,214.1
2008	700,176	\$810,464	\$926,211	70	289	\$1.32	2,422.8
2009	403,384	\$330,932	\$375,343	61	326	\$0.93	1,237.4
2010	164,922	\$241,808	\$270,949	35	130	\$1.64	1,268.6
2011	5,095	\$6,903	\$7,578	11	30	\$1.49	169.8
2012	38,115	\$48,997	\$52,818	13	25	\$1.39	1,524.6
2013	44,209	\$92,134	\$97,742	15	75	\$2.21	589.5
2014	69,628	\$109,584	\$114,204	11	31	\$1.64	2,246.1
2015	58,353	\$67,810	\$69,910	11	68	\$1.20	858.1
2016	73,251	\$119,172	\$121,316	13	100	\$1.66	732.5
2017	‡	‡	‡	‡	‡	‡	‡

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
 * Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.
 ‡ Values for 2017 were withheld to maintain confidentiality standards.

Table 26. Summary Statistics for White Shrimp Landings from 419

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	132,557	\$179,494	26.9	116	\$1.53	1,047.8
Standard Deviation	167,489	205,825	17.4	83	0.38	605.1
Early Third: 2000-2005						
Average	61,172	\$101,097	26.3	102	\$1.69	743.7
Standard Deviation	16,069	29,685	10.9	46	0.42	384.3
Middle Third: 2006-2011						
Average	267,146	\$331,472	39.3	177	\$1.31	1,233.3
Standard Deviation	225,971	287,824	20.3	101	0.22	654.3
Recent Third: 2012-2016						
Average	56,711	\$91,198	12.6	59.8	\$1.62	1,190.2
Standard Deviation	13,749	26,097	1.5	28.1	0.34	617.6

Table 25. Trip Ticket Commercial Landings Statistics for Saltwater Fish from Trip Ticket Area 419

Year	Volume (Pounds)	Current Dollar Value	Real Dockside Value*	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
2000	39,596	\$32,383	\$44,852	13	14	\$1.13	2,828.3
2001	72,162	\$36,846	\$49,897	19	50	\$0.69	1,443.2
2002	62,124	\$39,771	\$53,044	15	39	\$0.85	1,592.9
2003	1,282	\$918	\$1,201	3	4	\$0.94	320.5
2004	‡	‡	‡	‡	‡	‡	‡
2005	‡	‡	‡	‡	‡	‡	‡
2006	407,269	\$326,467	\$390,532	30	132	\$0.96	3,085.4
2007	‡	‡	‡	‡	‡	‡	‡
2008	492,604	\$268,330	\$306,652	27	116	\$0.62	4,246.6
2009	78,499	\$43,307	\$49,118	13	49	\$0.63	1,602.0
2010	27,053	\$9,778	\$10,956	14	21	\$0.40	1,288.2
2011	30,271	\$24,002	\$26,350	5	16	\$0.87	1,891.9
2012	75,234	\$62,382	\$67,247	8	110	\$0.89	683.9
2013	62,291	\$57,728	\$61,241	10	63	\$0.98	988.7
2014	134,514	\$119,333	\$124,364	4	101	\$0.92	1,331.8
2015	‡	‡	‡	‡	‡	‡	‡
2016	91,364	\$85,702	\$87,243	5	48	\$0.95	1,903.4
2017	‡	‡	‡	‡	‡	‡	‡

* Real dockside values are expressed in constant 2017 dollars using the U.S. Bureau of Economics Implicit Price Deflator.
* Pounds per trip, an estimate of catch per unit of effort, is the quotient of pounds of landings divided by (the number of) trips.
‡ Values for 2004, 2005, 2007, 2015, and 2017 were withheld to maintain confidentiality standards.

Table 26. Summary Statistics for Saltwater Fish Landings from 419

2000-2017	Volume (Pounds)	Real Dockside Value	Fishers	Trips	Real Value per Pound*	Pounds per Trip*
Average	121,097	\$97,900	12.8	59	\$0.83	1,785.1
Standard Deviation	144,732	112,266	8.2	41	0.19	1,018.9
Early Third: 2000-2003						
Average	43,791	\$37,249	12.5	27	\$0.90	1,546.2
Standard Deviation	27,229	21,016	5.9	19	0.16	888.7
Middle Third: 2006, 2007-2011						
Average	207,139	\$156,722	17.8	67	\$0.70	2,422.8
Standard Deviation	200,900	159,355	9.3	48	0.20	1,096.2
Recent Third: 2012-2014, 2016						
Average	90,851	\$85,024	6.8	80.5	\$0.94	1,227.0
Standard Deviation	27,232	24,669	2.4	25.8	0.03	452.8