

Economic Impact of the 2010 Oil Spill on Coastal Alabama Marine-Based Industries

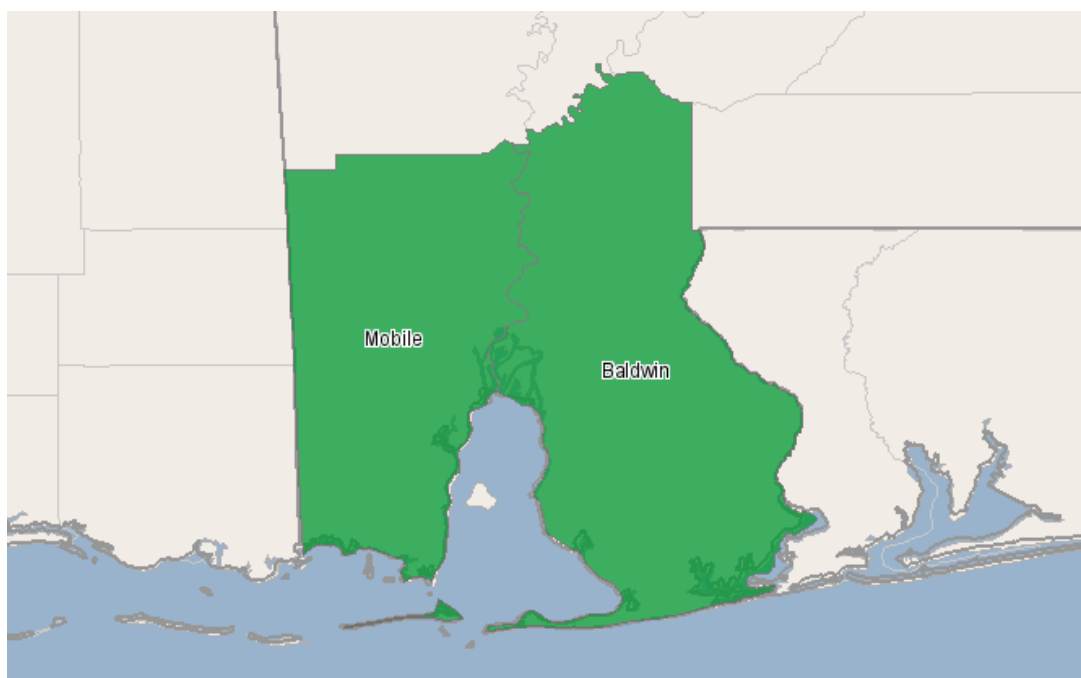
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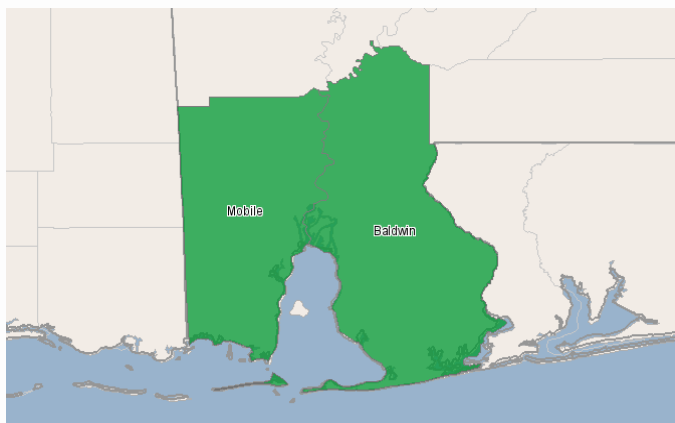
May 2012



MASGP-12-019

This publication was supported by the U.S. Department of Commerce's National Oceanic and Atmospheric Administration under NOAA Award NA10OAR4170078, Mississippi-Alabama Sea Grant Consortium, U.S. Department of Agriculture, Alabama Cooperative Extension System and Mississippi Cooperative Extension Service. The views expressed herein do not necessarily reflect the views of any of these organizations

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Alabama Marine Resources Assessment Web site:
<http://www.aces.edu/dept/fisheries/aquaculture/marine-assessment/>

Summary

The impact of the 2010 Deepwater Horizon (DWH) oil spill on coastal Alabama's economy and marine-based industries was significant. Marine-based industries include commercial fishing, seafood processing, and tourism. Initial impacts and recovery for individual industries were assessed in this project for the May 2010 to March 2012 period for Baldwin and Mobile Counties, Alabama located on the Gulf of Mexico. It was found that initial impacts and recovery of jobs, employee earnings and sales generated per employee varied by industry sector.

The closure of Alabama and Gulf of Mexico off-shore waters to commercial fishing severely disrupted the 2010 fishing season and resulted in losses in jobs, employee earnings, and sales generated per employee. However, despite this temporary closure, shellfish (including shrimp, blue crab, and oysters) fishing has remained relatively stable one year after the oil spill while finfish fishing appears to be continuing its long-term decline. Whether the recruitment rates for finfish and shellfish have been adversely affected in the long run by the oil spill remain to be seen.

Over the past decade, seafood processing in coastal Alabama counties has been on the decline due to hurricanes, imports, and increased fuel prices. Most large-scale processors have relied upon imported seafood to keep their businesses open while many smaller processors have gone out of business. The oil spill event had two effects on this sector. First, the closed fishing grounds resulted in less domestic product to process; and secondly, the negative impact from concerns about seafood safety reduced sales of product from this region. Fortunately, both are likely to be short-run impacts.

While tourism sectors were initially hit hard during the summer of 2010, the fall 2010 concerts lured tourists back, and indicators from the summer of 2011 showed a strong recovery in lodging occupancies and other tourism-related industry revenues to pre-oil spill levels.

Dynamic economic conditions and market volatility make it difficult to relate economic changes to only the DWH event and its effect on marine-based industries. According to our 2009 through 2011 economic analysis, the greatest losses occurred in the commercial fishing and boating industries while coastal tourism industries were able to rapidly rebound from the oil spill.

Introduction

The DWH oil spill in the Gulf of Mexico flowed for 86 days from April 20 to July 15, 2010, releasing 4.9 million barrels of crude oil. On September 19, 2010, the relief well process was successfully completed, and the federal government declared the well “effectively dead.” It was the largest accidental marine oil spill in the history of the petroleum industry. This oil spill incident has and will continue to have significant impacts on coastal communities in the Gulf of Mexico region for a number of years. On July 15, 2010 Sea Grant Extension created a Response and Recovery Task Force for the affected Gulf of Mexico States. As a part of the Alabama effort, a compilation of historical baseline economic indicators, relevant to marine-based industries of coastal Alabama (Baldwin and Mobile Counties), was begun.

One of the successful endeavors of this project was the creation of the Alabama Marine Resources Assessment Web site, serving as a portal for information dissemination for researchers, policymakers, and the general public. A second endeavor focused on tracking the economic sector impacts of the DWH oil spill as a short-term event within the broader macroeconomic context of on-going community changes resulting from hurricanes *Katrina* (August 2005) and *Rita* (September 2005) and the Great Recession (December 2007 through June 2009). In this economic assessment, we have relied heavily on secondary governmental data which are often lagged by months or years depending on the source. Additionally, we have relied heavily on input-output (I/O) analysis using the Economic Modeling Specialists Inc. (EMSI) software that incorporates quarterly updates from the US Department of Labor employment statistics (job numbers, earnings, and sales per employee). A third major endeavor was to communicate our research to a

diverse audience and that goal was achieved by publishing our summary of the economic impact of the oil spill in *Auburn Speaks* (Hanson and Baker, 2012).

Marine-Based Sectors

For this research, marine-based sectors are defined as industries that rely on the Gulf of Mexico environment for its products or as an input for their businesses, goods or services. We focus on three marine-based sectors that have been directly and indirectly affected by the DWH oil spill. These sectors are comprised of the commercial fishing, seafood processing, and tourism industries. These industry sectors are classified in the North American Industry Classification System (NAICS) codes, including broad to specific sub-classifications. Alabama’s Gulf of Mexico marine economy, by our definition, are comprised of the following NAICS classification categories: Commercial Fishing, including shellfish (NAICS 114112) and finfish (114111) fishing; Seafood Processing including fresh and frozen seafood processing (311712), fish and seafood merchant wholesalers (424460), fish and seafood markets (445220); and Tourism, including boat dealers (441222), scenic sightseeing water transportation (487210), residential property managers (531311), marinas (713930); accommodations and food services (72), including full-service restaurants (722110), and hotels and motels (722110), etc. For a complete listing of NAICS codes within our marine-based industries refer to Appendix I.

This report is broken out into four parts. The first three parts cover historical baseline economic data related to Alabama’s marine-based industries, i.e., commercial fishing, seafood processing/wholesaling and tourism sectors. An understanding of each sector’s historical trend is needed to interpret changes in coastal economic impacts due solely from

DWH and those occurring due to other macroeconomic conditions and natural disasters over a longer time span.

Report Organization

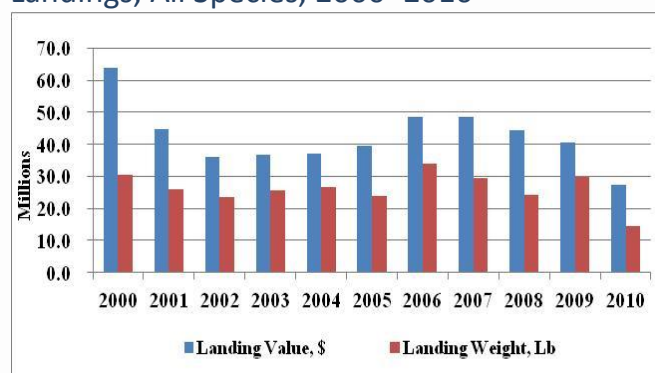
Parts I, II, and III of this report look at the long-term trends in commercial fishing, seafood processing and tourism as it relates to Alabama's coastal economy. Part I focuses on historical commercial fishing in Alabama and its biological and economic status as a Gulf of Mexico fishery. Part II discusses seafood processing, its economic condition, and DWH impacts on Gulf of Mexico seafood consumption. Part III highlights the diversity of coastal tourism sectors, such as lodging, restaurants, recreational fishing, nature tourism, the impact from the DWH oil spill and its rapid recovery. Lastly, Part IV illustrates the results from EMSI economic modeling that indicate the short-term gains and losses from the DWH event in terms of jobs, employee earnings and sales generated per employee for each of the marine-based industries assessed in this research. When data permits the trends are compared to 2010 data (the year of the DWH oil spill) and also to data from 2011 to understand the short-term changes that have already occurred.



I. Commercial Fishing

The biodiversity, richness, and abundance attributed to coastal Alabama's fisheries directly correlates to a healthy ecosystem and economy. Estuary-dependent organisms such as shrimp need quality water for breeding. Brown and white shrimp alone account for 80 percent of Alabama's commercial fishing revenue (Mobile Bay's National Estuary Program, 2008). Figure 1 compares commercial seafood species landing quantities for 2000 through 2010 for all seafood landed in Baldwin and Mobile counties, Alabama. Landings and values for individual species, (e.g., blue crab, oysters, and shrimp) can be found on this project's Alabama Marine Resources Assessment Web site at: www.aces.edu/dept/fisheries/aquaculture/marine-assessment/industry-impacts.php.

Figure 1. Annual Alabama Commercial Seafood Landings, All Species, 2000–2010

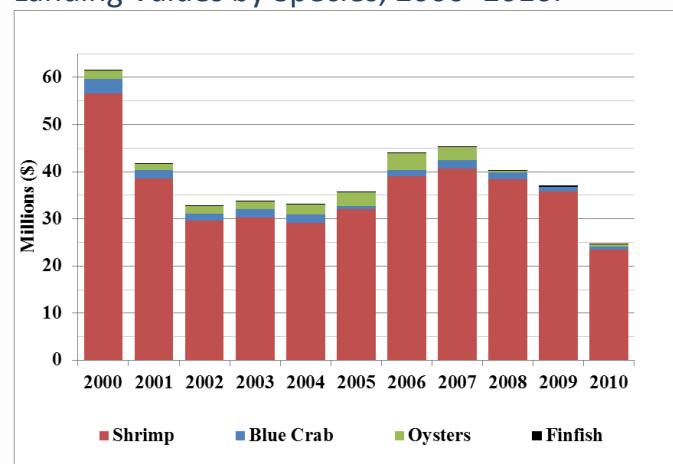


Source: NOAA Fisheries, NMFS 2012.

Note that the NMFS data is current only through 2010 but the trend in seafood landings value was on the decline since 2007 while landing weight had bottomed out in 2008, rebounded in 2009 and then fell to its lowest level in a decade in 2010, the year of the DWH event. In Figure 2 landing values by species is presented and show shrimp dominating over blue crab, oysters, and other finfish species. Note in Figure 2 that the value for shrimp had

been declining since 2007 to similar levels during 2002 to 2005. In 2010 the value of shrimp drastically dropped compared to any other year in the prior decade.

Figure 2. Annual Alabama Commercial Seafood Landing Values by Species, 2000–2010.



Source: NOAA Fisheries, NMFS 2012.

Alabama's fishery landings are important to its fishermen, residents, communities and tourism industry, but a comparison of commercial landings across the Gulf of Mexico States shows that Louisiana takes the lead in total quantities landed (Table 1).

Table 1. Commercial Fishing Landings for Four Gulf of Mexico States (5 Year Average, 2005–2010).

State	Commercial Pounds (millions) ¹	%
Alabama	25.8	2
W. Florida	65.5	6
Louisiana	973.6	74
Mississippi	193.4	18
Total	1,258.3	100

¹ Does not include menhaden or Texas landings. Source: NOAA Fisheries, NMFS 2011.

Gulf of Mexico Fisheries and Recovery

In his report to Kenneth Feinburg, Claims Administrator of the DWH Incident, Dr. John W. Tunnell Jr., of the Harte Research Institute for Gulf of Mexico Studies, Corpus Christi, Texas, provided his expert opinions on the recovery of gulf fisheries post-DWH (Tunnell, 2011). He concluded the following for commercially important fish species in the Gulf of Mexico:

Shrimp

“In summary, if potential impact scenarios...have not significantly impacted 2010 shrimp populations and their life cycles, it is believed that shrimp catches for the brown, white, and pink shrimp in the northern Gulf of Mexico will likely continue along the same harvest trends in recent years by 2011, and even more likely by 2012. Loss of Mississippi Delta nursery habitat could cause a percentage reduction in shrimp population size until marshes recover (Tunnell, 2011:40).”

Blue Crab

“In summary, because blue crab populations do not appear to have been significantly impacted by the DWH oil spill, and because they are a highly reproductive species with widespread distribution throughout the region, it is believed that their population levels will likely continue along the same harvest trends in recent years in 2011. As noted above, some local populations may be reduced by larval impacts from the oil (or oil and dispersants) or by reduction in nursery ground coastal marshes. As indicated with shrimp, this loss of nursery habitat could cause a percentage reduction in crab population size until the marshes recover (Tunnell, 2011:40-41).”

Oysters

“In summary, it is believed that oysters in most areas of the northern Gulf will likely continue along the same harvest trends in recent years in 2011. In areas where oysters died as a result of freshwater diversion and flooding, oyster reefs

should be recolonized by young oysters in 2011 (assuming there are no large scale flooding events in 2011), but they will not likely be of harvestable size until late 2012 or 2013. In areas where oyster reefs were heavily oiled, oyster reefs may not recover for 6-8, or even 10 years (Tunnell, 2011:41).”

Commercial Finfish

“In summary, commercial finfish are not believed to have been significantly impacted by the DWH oil spill, except with the possibility of those in the floating fish egg stage. If the fish eggs were negatively affected for certain species, then short-term, and possible long-term consequences, are likely for those species. If recruitment classes were normal in 2010, then, the fishery will likely continue along the same harvest trends in recent years during 2011 (Tunnell, 2011:41).”

Commercial Fishing Job Trends

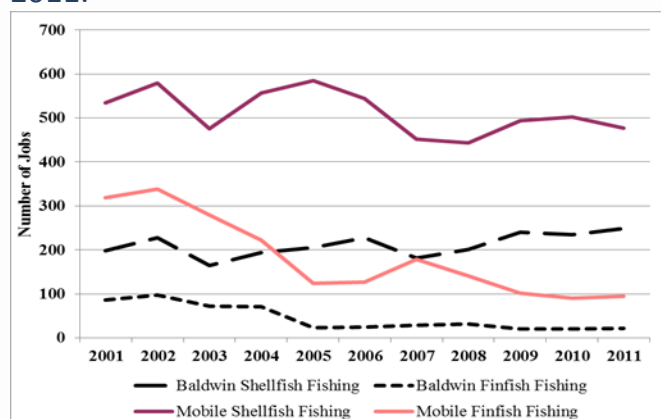
Using EMSI and NAICS industry sector codes, commercial fishing jobs for 2001 through 2011 for Baldwin and Mobile, Counties, Alabama were tracked. In 2001 there were a total of 1,136 fishing jobs for Mobile and Baldwin Counties combined. In 2011 there were 842 fishing jobs, a 26% decline or 2.2% decline per year. The two prominent sectors in commercial fishing are shellfish (shrimp) and finfish fishing (Figure 3). Shrimp fishing predominates with more operations originating from Mobile County than from Baldwin County. See Appendices IIa and IIb for detailed historical annual job numbers for Mobile and Baldwin Counties respectively.

In the Mobile County, shellfish (shrimp) fishing sector there were 534 jobs in 2001 and 477 jobs in 2011, an 11% decrease; finfish fishing declined from 318 jobs in 2001 to 95 jobs in 2011 (-70%).

Between 2001 and 2011 Baldwin County encountered a sharp decline in the number of finfish fishing jobs (-74%), shrinking from 86 jobs in 2001 to 22 jobs in 2011. However, shrimp fishing jobs increased from 198 jobs in 2001 and 248 jobs in 2011 (+25%).

The closure of Alabama and Gulf of Mexico off-shore waters to commercial fishing severely disrupted the 2010 fishing season and resulted in losses in jobs, employee earnings and sales generated from employees. However, despite this temporary closure, shellfish (including shrimp, blue crab, and oysters) fishing has remained relatively stable one year after the oil spill while finfish fishing appears to be continuing its long-term decline. Whether the recruitment rates for finfish and shellfish have been adversely affected in the long run by the oil spill remain to be seen.

Figure 3. Commercial Fishing Jobs Found in Baldwin and Mobile Counties, Alabama 2001–2011.



Source: EMSI, Complete Employment, 2011.4.

II. Seafood Processing

In 2009 Bayou La Batre (Mobile County) was ranked second in the nation as a commercial fishery port with 19 million pounds landed annually with a value of \$36 million (Alabama Waterfront Access Study, 2009). During the

same year one company, Bon Secour Fisheries brought in 5 million pounds of seafood with a landed value of more than \$7 million (Alabama Waterfront Access Study, 2009). The average annual seafood processing value for Alabama from 2000 through 2009 was \$137 million (NMFS, 2009). Alabama has a total of more than 80 seafood processor and wholesaler establishments, which is a significant portion of the entire Gulf of Mexico's (US only) processing (Nan Steedley, Alabama Department of Public Health, Seafood Branch inspector, personal communication, November 30, 2010). Figure 4 depicts Alabama's annual seafood processing weight and value from 2000–2010. Alabama's annual seafood landing values decreased in the early 2000's but has remained relatively steady from 2003 through 2009. A dramatic dip in quantity processed in 2010 is attributable primarily to the impact of the oil spill but also was affected by a number of issues the industry currently faces including internal structural changes and other economic forces such as the Great Recession.

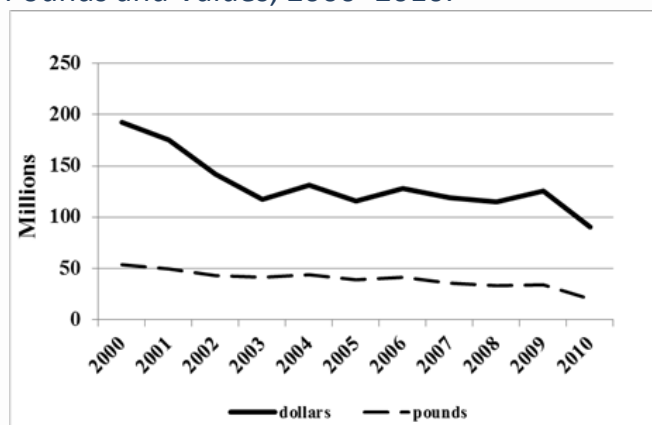
Again, shrimp products dominate in value and quantity processed over other seafood products. Oyster and crab products had similar weight and value levels, while fish products were much lower (Table 2).

Table 2. Alabama's Processed Seafood Products, 5 Year Average (2005–2010), Values and Weight.

Product Category	Value (\$millions)	Weight (million lb)
Blue Crab	17.5	4.6
Finfish	3.4	1.3
Oyster	23.5	4.2
Shrimp	70.8	23.9
Alabama Average	98.8	29.1

Source: NOAA NMFS, personal communication, 2012.

Figure 4. Alabama's Annual Seafood Processing Pounds and Values, 2000–2010.



Source: NOAA NMFS, personal communication, 2012.

State of Seafood Processing in Alabama

Seafood inspection permits are required by the Alabama Department of Public Health's Seafood Branch, for seafood processing companies who further process or add value to raw fish/shellfish products. Across the board, the number of seafood processing permits in Mobile County substantially decreased from the start of the permitting period, October 1, 2010, which is post-DWH oil spill, compared to the same period in 2009 for shellfish, blue crab and value-added seafood processing. For the same period, shellfish processing permit numbers were down by 12 (from 19 to 7, a 63% decrease); blue crab permits were down by 7 (from 9 to 2, a 78% decrease); and permits for value added seafood processing, including products such as dips and spreads sold in supermarkets, decreased by 10 (from 18 to 8, a 56% decrease) (Nan Steedley, Alabama Department of Public Health, Seafood Branch inspector, personal communication, November 2011).

For the 2011 permitting season, the total number of shellfish permits increased by 30 (7 in 2010 to 37 in 2011); blue crab permits

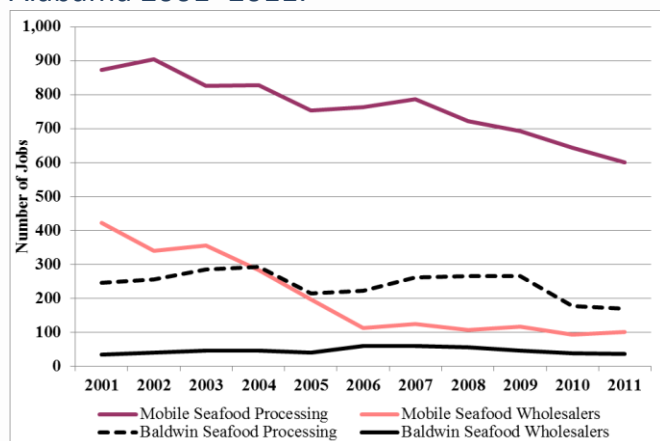
increased by 17 (from 2 in 2010 to 19 in 2011). Value-added seafood processing increased by 40 (from 8 in 2010 to 48 in 2011). Most current seafood processing permit holders are larger processors, having 20 or more employees and those processors that have left the sector were primarily smaller businesses (i.e. those with less than 20 employees). There is encouraging news for seafood processing post-DWH oil spill.

Seafood Processing Job Trends

Using EMSI and seafood processing NAICS codes, jobs from 2001 through 2011 for Baldwin and Mobile Counties, Alabama were tracked (Figure 5). We can see that most seafood processing jobs occurred in Mobile County. Between 2001 and 2011 Mobile County seafood processing jobs declined from 873 jobs in 2001 to 600 jobs in 2011 (–31%), (see Appendix IIa – Mobile County for annual job details). The number of seafood processing jobs in Baldwin County had a proportionately similar decline in jobs during this same time period, with jobs declining from 247 in 2001 to 170 in 2011 (–31%).

Mobile County fish and seafood merchant wholesaler jobs declined during the 2000's, from 423 jobs in 2001 to 102 jobs in 2011 (–76%). For the same time period, Baldwin County's number of jobs for this sector gained from 35 in 2001 to 36 in 2011 (+1%).

Figure 5. Fresh and Frozen Seafood Processing Jobs Found in Baldwin and Mobile Counties, Alabama 2001–2011.



Source: EMSI, Complete Employment, 2011.4.

Seafood Consumption

Consumers who eat seafood more than once per week are considered to be “heavy” seafood consumers and they tend to be 55 years or older and highly educated according to Harrison and Degeneffe (2010). In a recent survey, conducted by the Oil Disaster Recovery Program (ODRP) on Gulf of Mexico seafood consumption, results indicated that even pre-oil spill there was a steadily declining consumer behavior toward seafood consumption (ODRP, 2011). A number of factors can explain why consumers are cutting back but high costs and safety concerns are primary reasons found by this survey. Their findings suggest that although positive consumer perceptions might have decreased due to DWH, the consumption of shrimp, crab and finfish due to the oil spill are likely to be a short-run impact (ODRP, 2011).

In the aftermath of the DWH oil spill, a growing number of consumers, especially heavy users, were skeptical of Gulf of Mexico seafood safety (Harrison and Degeneffe, 2010). These perceptions posed immediate threats to the seafood industry. However as the surveys

conducted by Gulf Coast Business Council and Louisiana State University suggest, the high price of seafood was beginning to curtail consumer demand even before the DWH oil spill.

Seafood Industry and Consumer Behavior for Gulf Seafood

The seafood supply chain for the entire Gulf of Mexico coast had experienced setbacks even before the DWH oil spill. From freshwater diversions and lack of product availability to the effects of previous hurricanes, these disturbances have undermined the seafood market (ODRP, 2011). On the whole, seafood harvesting was below average in the Gulf of Mexico as a result of the rising costs, which reduced processors’ purchasing power to buy seafood (ODRP, 2011). Thus, the price of seafood has dramatically affected consumer demand. Nowadays imported seafood tends to be more cost-effective for seafood processors who want to stay in operation (ODRP, 2011). The irony is that consumers believe that the quality of domestic seafood is superior to imported products (ODRP, 2011), but domestic seafood purchases are declining. This suggests that the Gulf of Mexico seafood has a premium advantage over imported seafood.

Over the past decade, seafood processing in coastal Alabama counties has been on the decline due to hurricanes, imports and increased fuel prices. Most large-scale processors have relied upon imported seafood to keep their businesses open while many smaller processors have gone out of business. The oil spill event had two effects on this sector. First, the closed fishing grounds resulted in less domestic product to process; and secondly, the negative impact from concerns about seafood safety reduced sales of product from this region.

Fortunately, both are likely to be short-run impacts.

III. Coastal Tourism

According to Alabama's Travel Economic Impact Report, a total of 21 million travelers visited Alabama in 2009 with the Gulf Coast region comprising 35% of total state tourism dollars (Alabama Tourism Department, 2009), Appendix III. The Gulf region of Alabama had the largest total travel expenditures, travel-related earnings, and travel-related employment for the state of Alabama (Alabama Tourism Department, 2009). In 2009, 4.6 million guests visited Alabama's Gulf Coast region and spent \$3.2 billion. In turn this generated 40,000 travel-related jobs accounting for \$915 million in wages and salary (Alabama Gulf Coast Center for Visitor's Bureau).

Lodging Revenue

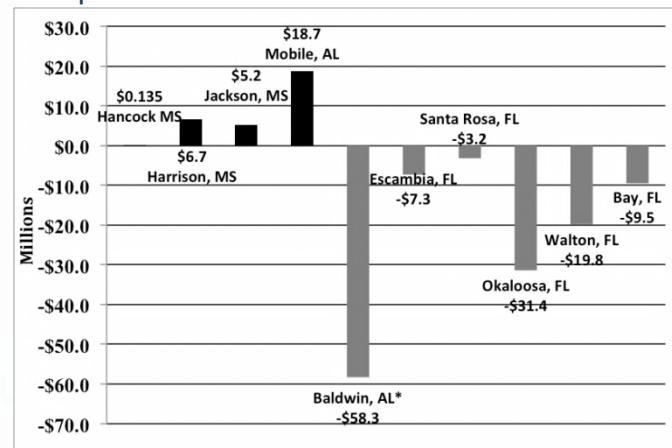
The initial economic shock from the DWH oil spill was most felt within coastal Alabama's marine-related tourism industry in Baldwin County. From May through August 2010 Baldwin County lost \$58 million (or 33%) of its lodging revenue compared to the same months in 2009 (Figure 6) (Alabama Gulf Coast Convention and Visitor's Bureau). Retail sales for the same region and time period dropped 28% compared to the same period in 2009. Revenue related to Baldwin County beaches was estimated to have lost \$64 million due to the DWH oil spill during the summer of 2010. While Baldwin County saw a sharp decline in lodging revenue, Mobile County gained revenue (Figure 6) as a result of BP hosting its crews in hotels there.

Coastal tourism recovery did not immediately begin until BP funded free public concerts late

in the 2010 summer season, which brought tourists to the coast to see recording artists such as Jimmy Buffet, Bon Jovi, and Brad Paisley. There were estimated crowds exceeding 30,000 people for each concert (Dumas, 2010). Although these events temporarily stimulated economic activity, the growing concern was about how small tourist-related businesses would sustain themselves during the winter months until the 2011 summer season after the low 2010 summer business activity, and the uncertainty of 2011 being a better business year.

The worst case scenario was not realized for coastal Alabama tourism since clean-up and restorative efforts along coastal Alabama's beaches were successful. In fact the summer 2011 season proved to set a new record in lodging revenues, exceeding 2007 through 2009 levels (Figure 7). Retail sales flourished to an all-time high in the summer of 2011 (Figure 8).

Figure 6. Lodging Revenues by Coastal Counties from Mississippi, Alabama, and Florida Panhandle (left to right), May to August 2010 Compared to the Same Period in 2009.

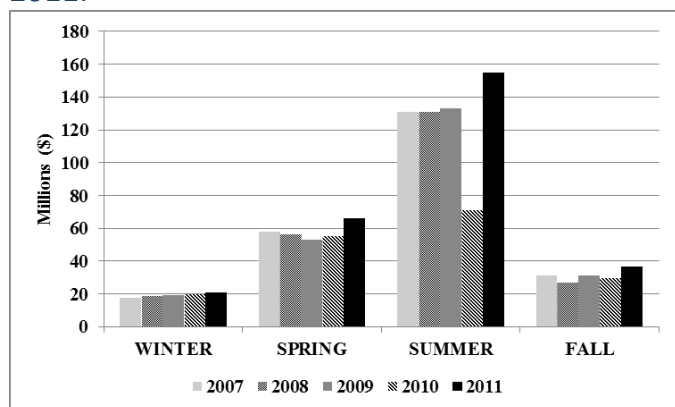


* Total loss for beaches **-\$64.3 million**

Sources: Gulf Shores and Orange Beach Resort, Mississippi Development Authority, Alabama Department of Tourism, Haas Center for Business Research & Economic Development.

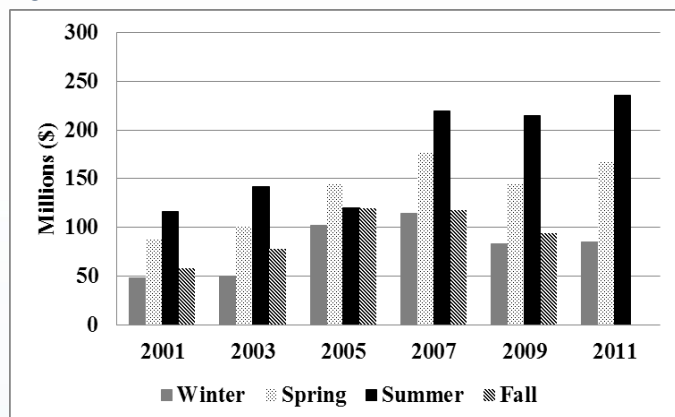
Without a doubt the U.S. economy was making a comeback by the summer of 2011, showing an increase in tourism nationwide. Increased tourism to coastal Alabama in 2011—one year after the DWH oil spill—was not only a sign that the nation’s economy was on track but that tourists returned to Alabama’s beaches. Summer 2011 set precedence in record total lodging revenue. The cities of Fort Morgan, Gulf Shores, and Orange Beach generated over \$154 million compared to \$133 million in 2009 and \$131 million in 2007 (Figure 7).

Figure 7. Lodging Revenue from Fort Morgan, Gulf Shores and Orange Beach, Alabama, 2007–2011.



Source: Alabama Department of Revenue

Figure 8. Retail Sales from Fort Morgan, Gulf Shores, and Orange Beach, Alabama, 2001–2011.



Source: Fort Morgan, Gulf Shores, and Orange Beach City Revenue Departments

Recreational Fishing

Alabama’s coast is home to over 300 species of saltwater fish (Alabama Waterfront Access, 2010). In 2008 1.67 million sport fishing trips were recorded on Alabama’s coast. From the initial date of closure due to the DWH oil spill to the final date for reopening, fishermen, with the exception of shrimpers, lost a total of 81 days. Full closure of 351 square miles of Alabama’s 777 square miles of state marine waters (45%) hit June 10, 2010. This impacted an important sector of the coastal tourism industry. Although Alabama does not have the highest valued recreational fishing tourism value in the Gulf of Mexico, the \$455.1 million in sales is vital to local businesses catering to this sector (Table 3).

Table 3. NOAA Recreational Fishing Expenditures Economic Impacts, 2009.

State	Sales Impacts (\$ millions)	Gulf (%)	Trips (millions)	Jobs
Alabama	475	5	1.7	4,924
W. Florida	4,369	44	15.5	42,314
Mississippi	471	5	1.1	3,188
Louisiana	1,774	18	4.0	19,688
Texas	2,847	28	N/A	22,127
Gulf Total	9,936	100	22.3	92,241

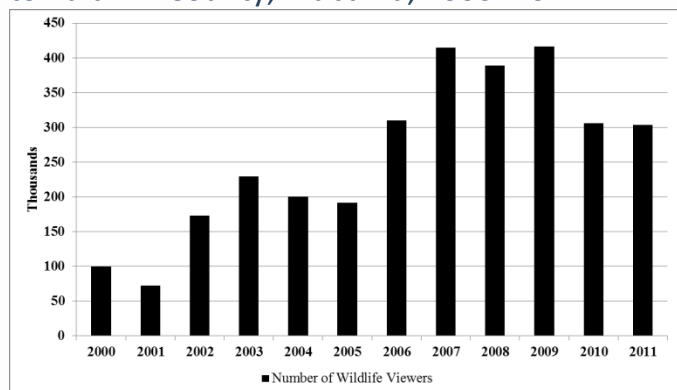
Source: NOAA Fisheries, NMFS, 2011.

Nature Tourism

Increasingly important to coastal Alabama is a growing interest in nature tourism. Nature tourism participation was at high levels from 2007 through 2009. Since coastal tourism took a hit in 2010, the number of wildlife viewers plummeted from 416,352 in 2009 to 303,502 in 2011 (–27%). From 2008 through 2011, a total

of 1.4 million visitors engaged in wildlife viewing (Figure 9).

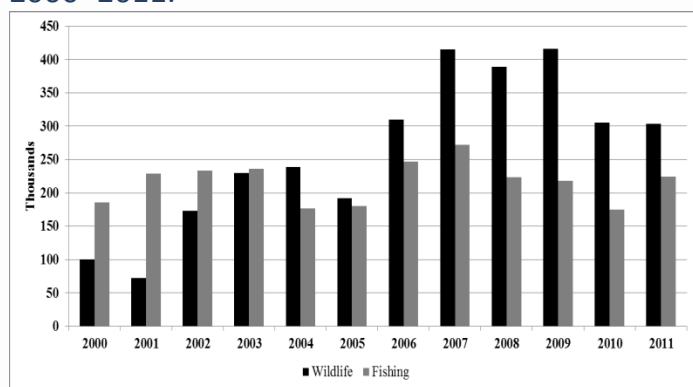
Figure 9. Nature Tourism by Overnight Guests to Baldwin County, Alabama, 2000–2011.



Source: Klages Group Surveys of overnight guests to Baldwin County, Alabama

Since 2004 wildlife viewing has outpaced fishing (Figure 10).

Figure 10. Wildlife Viewing versus Fishing by Overnight Guests to Baldwin County, Alabama, 2000–2011.



Source: Klages Group Surveys of overnight guests to Baldwin County, Alabama

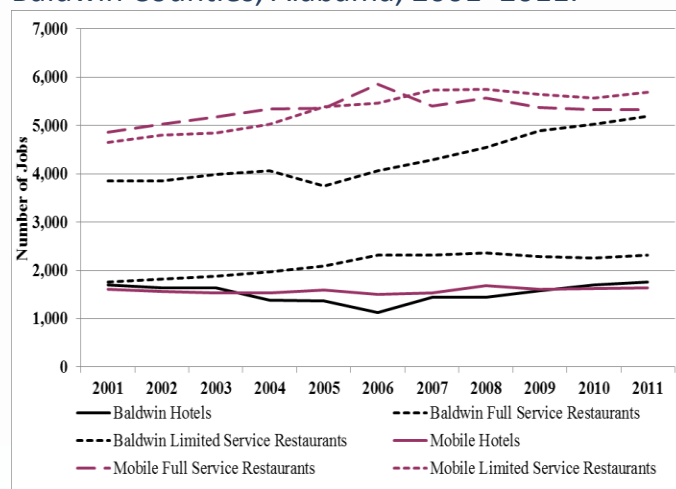
Coastal Tourism Job Trends

Job changes in tourism were tracked through the EMSI software by NAICS sector codes. For tourism these codes included industries related to accommodations and food services for Baldwin and Mobile, Counties (Figure 11), and for boat-related jobs (Figure 12) from 2001

through 2011 for Baldwin and Mobile, Counties, Alabama.

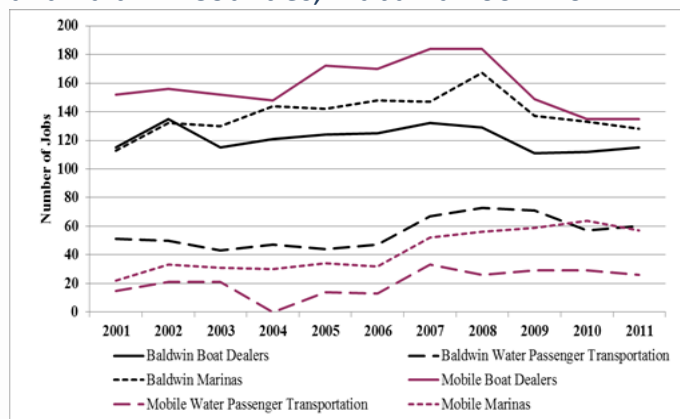
Mobile County had greater numbers of jobs in the full- and limited-service restaurant category compared to Baldwin County, and job numbers grew during the 10-year period for each county in each restaurant sector. Hotels and motel jobs dropped slightly from 2004 through 2006 for Baldwin County, but these jobs have made a comeback in 2011 (Figure 11). Mobile County marina jobs increased during this time span seeing an increase from 22 jobs in 2001 to 57 jobs in 2011 while Baldwin County marina jobs have recently declined (Figure 12). Boat dealer jobs have recently declined in Mobile County while they remain steady in Baldwin County (Figure 12). For further details see Appendices IIa and IIb.

Figure 11. Job Trends for Accommodations and Food Services (NAICS Code 72) for Mobile and Baldwin Counties, Alabama, 2001–2011.



Source: EMSI, Complete Employment, 2011.4.

Figure 12. Job Trends for Boat Dealers, Water Passenger Transport and Marinas for Mobile and Baldwin Counties, Alabama 2001–2011.



Source: EMSI, Complete Employment, 2011.4.

While tourism sectors were initially hit hard during the summer of 2010, late 2010 concerts lured tourists back and recent 2011 summer indicators show a strong recovery in lodging occupancies and other tourism-related industry revenues to pre-oil spill levels. Increased tourism to coastal Alabama in 2011 was a positive sign that tourists had accepted DWH oil spill clean-up efforts and were ready to return to their beloved Alabama coastal beaches.

IV. Impact of DWH Oil Spill on Coastal Alabama Marine Related Industries

Our analysis combines coastal Baldwin and Mobile Counties to assess the economic changes that have happened or are still happening due to the DWH oil spill. For marine-based industries, (e.g. commercial fishing, seafood processing/wholesaling, and tourism sectors), we used an EMSI 2011 Quarter 4 data set to derive changes in jobs, employee earnings, and sales generated per employee between January 2009 and December

2011. Data from 2009 represented pre-oil spill economic activity for the coast; 2010 data represented four months of pre-oil spill activity and 8 months of post-oil spill activity; and 2011 represents activity 9 to 20 months after the oil spill. The difference in job numbers, employee earnings, and employee sales generated between these years captures pre-, on-going, and post-oil spill effects in terms of economic gains and losses.

The change in jobs, employee earnings, and sales generated by employee for the marine-based industries in Baldwin and Mobile Counties were assessed by three economic categories, namely:

- 1) Commercial fishing, seafood processing, and seafood wholesaling;
- 2) Boating, sightseeing transportation and marinas; and
- 3) Accommodations and food service.

These broad categories contain several NAIC industry codes that correspond to specific marine-based industries and were tracked before, during, and after the DWH oil spill. Figures 13–15 present the changes in jobs, employee earnings, and sales generated from the end of 2009 through the end of 2011.

Figure 13. Number of jobs for marine-based sectors, pre- and post-oil spill, for Mobile and Baldwin coastal counties in Alabama, 2009 – 2011.

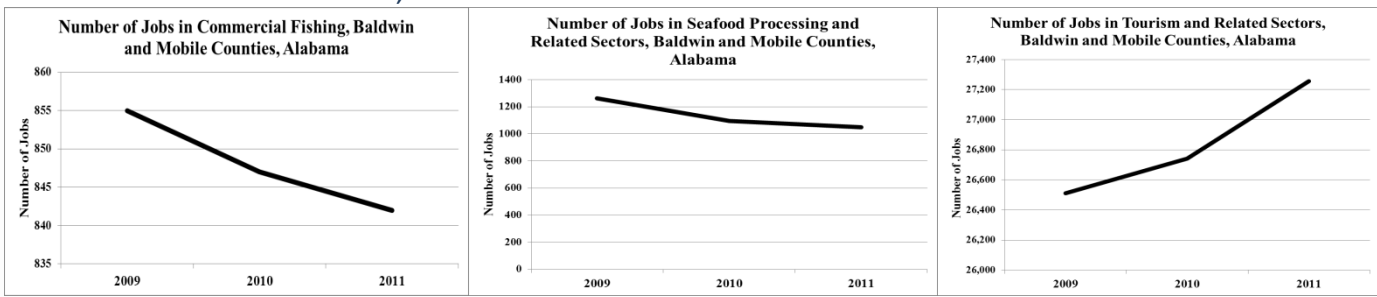


Figure 14. Earnings from jobs for marine-based sectors, pre- and post-oil spill, for Mobile and Baldwin coastal counties in Alabama, 2009 – 2011.

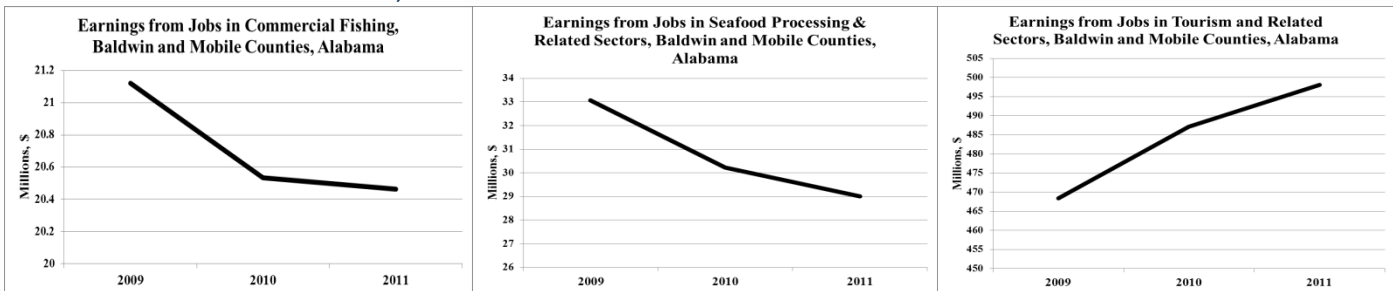
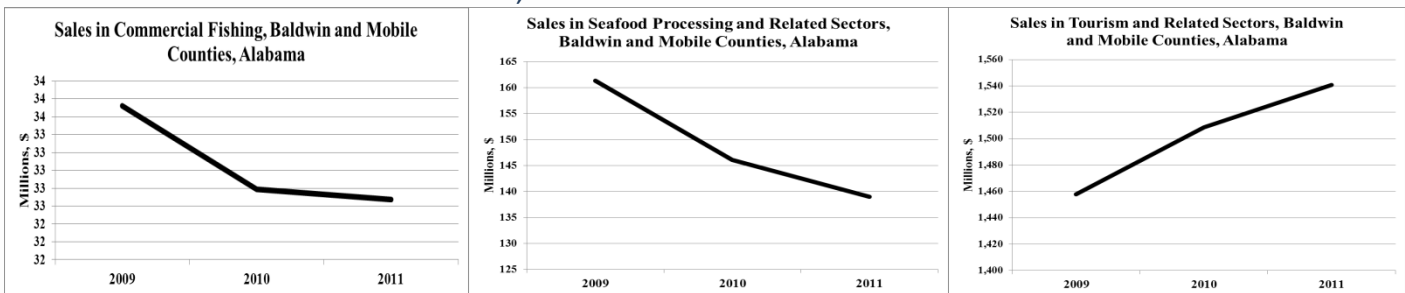


Figure 15. Sales generated from jobs for marine-based sectors, pre- and post-oil spill, for Mobile and Baldwin coastal counties in Alabama, 2009 – 2011.



Results

Jobs

The effects of the DWH oil spill on commercial fishing in Baldwin and Mobile Counties combined were negative between 2009 and 2011 with a loss of 13 jobs (855 in 2009 to 842 in 2011) (Appendix IV) and for the 2009–2011 period in Figure 13. Historically finfish fishing jobs have been declining since 2001 (Appendices IIa and IIb). Shellfish fishing has fluctuated the most from year to year. Some of the volatility in the commercial fishing sector could explain the structural changes affecting employment.

Seafood processing sectors, mainly fresh and frozen seafood processing, saw the sharpest decline in jobs, losing 189 jobs (959 in 2009 to 770 in 2011) (Appendix IV). Similarly fish and seafood merchant wholesalers experienced a loss of 25 jobs (163 in 2009 to 138 in 2011). This is likely due to harvest closures that occurred in spring 2010. This affected the supply of product and at the same time consumers decreased their demand for Gulf of Mexico seafood, particularly from Louisiana, Mississippi and Alabama, as a result of uncertainties tied to seafood safety issues.

Tourism experienced a gain of 746 jobs from 2009 (26,511 jobs) through 2011 (27,257 jobs), with accommodations and food service sectors appearing to have been the least disrupted by the oil spill than the other marine-based sectors (Appendix IV). Hotels gained 216 jobs (3,182 in 2009 to 3,398 in 2011) and full-service restaurants gained 261 jobs (10,268 in 2009 to 10,529 in 2011). Limited-service restaurants and drinking places experienced positive gains with +73 and +8 jobs respectively for the same

two-year period 2009–2011. The boat dealers sector lost 10 jobs (260 in 2009 to 250 in 2011). Scenic/sightseeing water transportation and marina sectors saw declines of similar magnitudes (Appendix IV). The residential property managers sector is an indicator of condominium rental activity and saw a decrease of 59 jobs (from 1,607 jobs in 2009 to 1,548 jobs in 2011).

Employee Earnings

Changes in employee earnings' by marine-based industry categories are presented in Figure 14, with more detail provided in Appendix V. Commercial fishing (finfish and shellfish) had employee earnings' remain steady at \$21.5 million in 2009 to \$20.5 million in 2011.

Fresh and frozen seafood processing employee earnings declined by \$3.5 million from 2009 to 2011 (\$23.4 million in 2009 to \$19.9 million in 2011). Fish and seafood merchant wholesaler employee earnings showed a loss of \$0.7 million (\$4.8 million in 2009 to \$4.1 million in 2011).

Employee earnings in the tourism, accommodation, lodging, food service, recreation, boating, marina sectors increased by \$29.7 million over the 2009 to 2011 period, going from \$468.3 million to \$498.0 million respectively. Nine of the twelve sectors gained in earnings over this period while the marina, residential property managers, and boat dealer sectors decreased. Hotels and full-service restaurant sectors' earnings both increased by \$9.7 million over the two year period. Boat dealer's employee earnings' decreased by \$0.2 million. Limited-service restaurants saw a \$5.0 million increase in employee earnings from 2009 to 2011 (Appendix V). Residential property managers absorbed the largest impact

with employee earnings losses of \$1.0 million in 2009 through 2011. Scenic and sightseeing water transportation sector saw a \$0.5 million gain in employee earnings from 2009 through 2011. The continued sluggish real-estate market explains partially the loss of \$1million in employee earnings for the residential property managers sector (Appendix V).

From these findings, it is clear that employee earnings in the tourism sectors (+29.7 million) responded and recovered much more quickly than for the commercial fishing and seafood processing sectors (-\$4.8 million). The long-term trends for tourism (increasing) and fishing/processing (decreasing) were exacerbated by the DWH oil spill event.

Sales

The results of sales dollars generated off of job numbers for each sector during the same time periods are presented in Figure 15, with more details provided in Appendix VI. Results showed that commercial fishing sales generated from employee number changes generally declined during the 2009 to 2011 period. Shellfish fishing sales dropped from \$25.9 million in 2009 to \$24.8 million in 2011 (-\$1.1 million -4.2%). Finfish saw a slight increase in sales from \$7.8 million in 2009 to \$7.9 million in 2011.

The largest loss of sales occurred in fresh and frozen seafood processing which decreased by \$21.2 million from 2009 (\$140 million) through 2011 (\$118.9 million). Fish and seafood merchant wholesalers lost \$1.6 million in sales over the same period. Fish and seafood markets gained \$0.4 million over this same time period.

In the tourism sector, the more prominent gains appeared in accommodations and food sectors

(Appendix VI). Hotels had the highest sales gain at \$32.8 million; full-service restaurants boosted sales by \$26.6 million. Limited-service restaurants increased sales by \$13.7million. marinas saw a loss of \$1.2 million in sales and the largest sales loss came from residential property managers at \$7.0 million scenic and sightseeing transportation and drinking places each gained in sales \$0.9 million and \$2.0 million respectively over the three-year period.

Again, we see the oil spill event hastening the long-term trend of declining commercial fishing and seafood processing/wholesaling sales. Tourism sector sales rebounded quickly from initial scares of long-term polluted beaches. Beaches were effectively cleaned and promotional events brought people back to see with their own eyes that the initial oil spill effect on the beaches and waters was not as dire one year after the oil spill as was originally imagined.

Economy Wide Impacts

We have reported direct marine-based industry impacts, as per our definition, from the DWH oil spill event. There are also other direct and indirect impacts from the DWH oil spill on other sectors of the coastal economy. In Appendix VII, VIII, and IX summaries of economy wide impacts for the two coastal Alabama counties are provided for jobs, employee earnings and sales, respectively.

The total coastal economy lost 794 jobs overall between 2009 and 2011 (Appendix VII). There was significant job loss in construction and wholesale trade. These losses occurred in the 2009 to 2010 period but were magnified in the 2009 to 2011 time period, a total of 2,512 in construction and 1,135 in manufacturing. In the 2010 to 2011 period, the majority of jobs occurred in construction, real estate, and government. Growth in administration jobs

continued throughout the 2009 and 2011 time period (Appendix VII).

In terms of earnings, there was a gain of \$414 million for the total coastal economy between 2009 and 2011 (Appendix VIII). Compared to all other sectors, finance and insurance saw the greatest loss in earnings during the 2009 to 2011 period. Increases in employee earnings in manufacturing and administration were seen throughout the 2009 to 2011 time period.

In terms of sales impacts, there was a gain of \$1.8 billion overall between 2009 and 2011 for all sectors of the economy (Appendix IX). Manufacturing led in the highest sales compared to other sectors. Finance and insurance incurred the greatest loss, (\$233 million) of any sector during the same time period. During the each time period from 2009 through 2011 retail trade steadily gained in sales despite a recession and the shock of the DWH oil spill (Appendix IX).

Toward Recovery

The Gulf of Mexico itself is as diverse and dynamic as it is a resilient ecosystem. The ocean floor naturally seeps oil and petroleum-eating microbes break down the hydrocarbons. The intensity of agricultural use upstream leads to nitrogen runoff creating dead zones that will continue to challenge the habitat in the Gulf of Mexico. Oil rigs provide habitat and serve as reefs vital to fisheries' habitat.

At the time of this report, a number of on-going recovery efforts are underway. The Natural Resources Damages Assessment (NRDA) is one process that follows the 1990 mandate of the Oil Pollution Act (OPA) which was enacted after the Exxon Valdez oil spill. NRDA requires that all injuries to natural resources be estimated. In 2011 NRDA received \$1 billion for early restoration projects divided among the

five affected Gulf States to establish the framework for early Gulf restoration. The projects, negotiated between NRDA and BP, include oyster reef restoration, marsh restoration, dune restoration, and public boat ramp installation. The State of Alabama will restore 20 miles of dunes at an estimated cost of \$1.1 million and fifty acres of marshland near Portersville Bay at an estimated cost of \$9.4 million (Deepwater Horizon Natural Resource Trustees, 2012).

On the seafood industry front, an official Alabama Seafood Marketing Commission was created in 2011. This board comprises diverse stakeholders who are charged with the task of hiring a marketing agency to develop a distinct Alabama seafood brand that ensures quality and consumer demand for Alabama seafood products.

For increased sustainable recreational fishing, the Certified Fisher Invested in Sustainable Harvests (CFISH) Program was established in 2011 to instruct charter boat captains and deckhands the proper catch techniques to reduce adverse impacts to marine habitats and marine life. To conserve, develop, and share the Gulf of Mexico fishery resources for the benefit of present and future generations is CFISH's mission.

The continuation of stock assessments of damages pre- and post-DWH oil spill is pivotal to the development of sound technologies used to determine policy for heavily targeted and regulated fish such as red snapper, grouper, and flounder. The DWH oil spill has triggered further research that will benefit our understanding of the Gulf of Mexico fishery.

The DWH oil spill event that marred Alabama's shores and crippled fishing and beach going in the summer will not be remembered for its damages but how coastal Alabamians handled its recovery in the summer of 2011 and beyond.

The tenacity shared by community members reflects a cohesive tapestry of commitment and common ground that has proven to be resilient.

As pointed out earlier, there is a strong interconnectedness among all marine-based industries. This connection is inextricably linked to the other major industries in coastal Alabama and ultimately dependent upon its coastal environment as a major input to the greater economy. The chain of economic impacts discussed in this paper predominately focuses on initial damages to marine-based industries, (e.g. commercial fishing, seafood processing, and tourism). Pre-spill impacts including hurricanes and economic recessions make it difficult to pinpoint causation. Other aspects to the marine economy such as residential property and tax base loss have not been heavily stressed in this research but must not be ignored.

Concluding Remarks

This report has released the most recent economic information available pertaining to Alabama's coastal economy. The short-term employment impacts illustrate the sectors hardest hit from the DWH oil spill event. While coastal tourism continues to break pre-spill records, commercial fishing and seafood processing remain fragile. The DWH oil spill gravely impacted commercial fishing and boating. Even though tourism felt the initial shock in the summer of 2010, the sector rapidly recovered, as a result of innovative and aggressive marketing and public outreach efforts.

Although the negative perceptions of eating Gulf of Mexico seafood have slightly lessened, the seafood processing industry will continue to struggle with decreased consumer demand. Marine-based industries have experienced economic ripple effects on many other business

sectors along the Alabama's Gulf of Mexico Coast. These impacts have and will continue to affect coastal Alabamians. The major challenge for coastal Alabama's communities lies in economic diversification. Ultimately, community resiliency strengthens, stabilizes, and protects economies from epic shocks, be they natural or human made.

Acknowledgements

Dr. Hanson and Ms. Baker would particularly like to thank the Smith-Lever Special Needs Grant who funded the project and Multi-State Gulf Coast Extension Recovery Task Forces (LaDon Swann, Director Mississippi-Alabama SeaGrant). In addition the following people kindly dedicated their time and resources without compensation from the project: Amelia Stehouwer of Auburn University's Economic Community Development Institute (ECDI), David Williams and Larson Hicks of Economic Modeling Specialists Inc. (EMSI), Herb Malone, Gulf Shores/Orange Beach Convention Center, Joanne McDonough of Mississippi-Alabama SeaGrant Tourism Specialist, Nan Steedley, Alabama Public Health Seafood Specialist, Chris Denson of Department of Natural Resources Conservation, Chris Nelson of Bon Secour Fisheries, James McCoy, Graphic Designer, and Troy Hahn, Auburn University IT Specialist.

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Appendix I

List of NAICS Codes Used in the EMSI Analysis

NAICS Code	Description
114111	Finfish Fishing
114112	Shellfish Fishing
311712	Fresh and Frozen Seafood Processing
424460	Fish and Seafood Merchant Wholesalers
441222	Boat Dealers
445220	Fish and Seafood Markets
487210	Scenic and Sightseeing Transportation, Water
531311	Residential Property Managers (condos)
713930	Marinas
721110	Hotels (except Casino Hotels) and Motels
722110	Full-Service Restaurants
722211	Limited-Service Restaurants
722212	Cafeterias, Grill Buffets, and Buffets
722213	Snack and Nonalcoholic Beverage Bars
722310	Food Service Contractors
722320	Caterers
722410	Drinking Places (Alcoholic Beverages)

Source: EMSI,
2011.4

Appendix IIa. Number of Jobs by NAICS Codes for Marine-Based Sectors in Mobile County, AL, 2001 – 2011. Negative values are in parentheses.

NAICS Code	Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001–2011 Change	2001–2011 % Change
114111	Finfish Fishing	318	338	279	222	124	126	178	141	101	90	95	(223)	(70%)
114112	Shellfish Fishing	534	579	475	557	585	544	451	443	494	502	477	(57)	(10%)
311712	Fresh and Frozen Seafood Processing	873	905	826	829	754	763	787	722	694	644	600	(273)	(31%)
424460	Fish and Seafood Merchant Wholesalers	423	340	355	283	198	112	125	107	116	94	102	(321)	(76%)
441222	Boat Dealers	152	156	152	148	172	170	184	184	149	135	135	(17)	(12%)
445220	Fish and Seafood Markets	102	100	87	92	91	101	72	71	79	85	88	(14)	(14%)
487210	Scenic and Sightseeing Transportation, Water	15	21	21	<10	14	13	33	26	29	29	26	11	73%
531311	Residential Property Managers	300	294	317	326	400	453	515	540	557	570	577	277	92%
713930	Marinas	22	33	31	30	34	32	52	56	59	64	57	35	159%
721110	Hotels (except Casino Hotels) and Motels	1,610	1,566	1,527	1,535	1,595	1,500	1,540	1,683	1,606	1,627	1,634	24	1%
721191	Full-Service Restaurants	4,857	5,024	5,182	5,348	5,356	5,847	5,407	5,566	5,374	5,327	5,334	477	10%
721199	Limited-Service Restaurants	4,644	4,802	4,852	5,024	5,390	5,464	5,730	5,748	5,649	5,570	5,692	1,048	23%
721211	Cafeterias, Grill Buffets, and Buffets	366	477	473	440	438	471	311	370	348	394	395	29	8%
721214	Snack and Nonalcoholic Beverage Bars	313	345	396	252	280	344	397	392	362	435	450	137	44%
721310	Food Service Contractors	732	623	593	663	624	696	697	774	873	942	964	232	32%
722110	Caterers	131	169	219	214	251	366	472	373	343	341	354	223	170%
722212	Drinking Places (Alcoholic Beverages)	354	379	401	381	353	321	335	372	369	371	380	26	7%
Total		15,746	16,151	16,186	16,344	16,659	17,323	17,286	17,568	17,202	17,220	17,360	1,614	10%

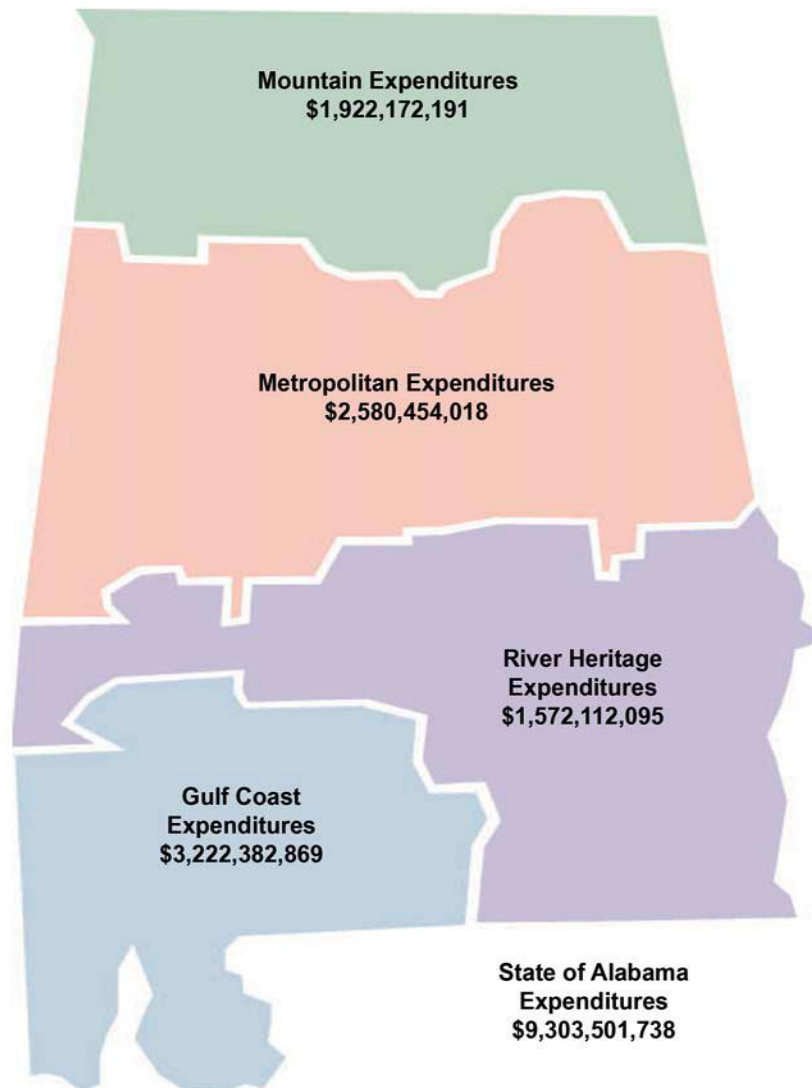
Source: EMSI, 2011.4

Appendix IIb. Number of Jobs by NAICS Codes for Marine-Based Sectors in Baldwin County, AL, 2001 – 2011. Negative values are in parentheses.

NAICS Code	Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001–2011 Change	2001–2011% Change
114111	Finfish Fishing	86	97	72	71	23	25	29	31	20	20	22	(64)	(74%)
114112	Shellfish Fishing	198	227	165	194	205	227	181	201	240	235	248	50	25%
311712	Fresh and Frozen Seafood Processing	247	255	286	293	214	223	261	265	265	178	170	(77)	(31%)
424460	Fish and Seafood Merchant Wholesalers	35	41	47	47	41	59	59	56	47	39	36	1	3%
441222	Boat Dealers	115	135	115	121	124	125	132	129	111	112	115	--	--
445220	Fish and Seafood Markets	41	48	42	32	32	29	51	57	61	55	54	13	32%
487210	Scenic and Sightseeing Transportation, Water	51	50	43	47	44	47	67	73	71	57	60	9	18%
531311	Residential Property Managers	640	608	771	856	772	807	930	997	1,050	978	971	331	52%
713930	Marinas	113	132	130	144	142	148	147	167	137	133	128	15	13%
721110	Hotels (except Casino Hotels) and Motels	1,694	1,645	1,637	1,387	1,365	1,135	1,441	1,451	1,576	1,704	1,764	70	4%
722110	Full-Service Restaurants	3,851	3,852	3,986	4,060	3,745	4,064	4,289	4,539	4,894	5,021	5,195	1,344	35%
722211	Limited-Service Restaurants	1,754	1,814	1,874	1,978	2,095	2,317	2,323	2,359	2,290	2,253	2,320	566	32%
722212	Cafeterias, Grill Buffets, and Buffets	49	55	17	22	40	59	85	94	64	136	137	88	180%
722213	Snack and Nonalcoholic Beverage Bars	41	39	72	103	126	222	261	308	277	228	240	199	485%
722310	Food Service Contractors	105	73	79	116	62	75	42	58	59	55	54	(51)	(49%)
722320	Caterers	45	40	41	48	87	89	94	77	88	94	102	57	127%
722410	Drinking Places (Alcoholic Beverages)	204	123	105	90	105	106	112	179	176	165	173	(31)	(15%)
Total		9,269	9,234	9,482	9,609	9,222	9,757	10,504	11,041	11,426	11,463	11,789	2,520	27%

Source: EMSI, 2011.4

Appendix III. Tourism Expenditures in Alabama by Region (www.Alabama.travel), 2009.



Appendix IV. Number of Jobs in Commercial Fishing, Seafood Processing and Wholesalers, Boating, and Accommodations/Food Services, Baldwin and Mobile Counties. Negative values are in parentheses.

NAIC Sectors	2009 Jobs	2010 Jobs	2011 Jobs	2010– 2009 change	2011– 2010 change	2011– 2009 change
Commercial Fishing						
Finfish Fishing	121	110	117	(11)	7	(4)
Shellfish Fishing	734	737	725	3	(12)	(9)
Subtotal	855	847	842	(8)	(5)	(13)
Seafood Processing						
Fresh and Frozen Seafood Processing	959	822	770	(137)	(52)	(189)
Fish and Seafood Merchant Wholesalers	163	133	138	(30)	5	(25)
Fish and Seafood Markets	140	140	142	0	2	2
Subtotal	1,262	1,095	1,050	(167)	(45)	(212)
Tourism						
Boat Dealers	260	247	250	(13)	3	(10)
Scenic and Sightseeing Water Transportation	100	86	86	(14)	0	(14)
Residential Property Managers	1,607	1,548	1,548	(59)	0	(59)
Marinas	196	197	185	1	(12)	(11)
Hotels (except Casino Hotels) and Motels	3,182	3,331	3,398	149	67	216
Full-Service Restaurants	10,268	10,348	10,529	80	181	261
Limited-Service Restaurants	7,939	7,823	8,012	(116)	189	73
Cafeterias, Grill Buffets, and Buffets	412	530	532	118	2	120
Snack and Nonalcoholic Beverage Bars	639	663	690	24	27	51
Food Service Contractors	932	997	1,018	65	21	86
Caterers	431	435	456	(4)	26	8
Drinking Places (Alcoholic Beverages)	545	536	553	(9)	17	8
Subtotal	26,511	26,741	27,257	230	516	746
Total Marine-Based Jobs and Changes	28,628	28,683	29,149	55	466	521

Source: EMSI, 2011.4

Appendix V. Earnings, in million \$, from Jobs in Commercial Fishing, Seafood Processing and Wholesalers, Boating, and Accommodations/Food Services, Baldwin and Mobile Counties. Negative values are in parentheses.¹

NAIC Sectors	2009 Earnings	2010 Earnings	2011 Earnings	2010– 2009 change	2011– 2010 change	2011– 2009 change
Commercial Fishing						
Finfish Fishing	4.9	4.3	4.9	(0.6)	0.6	0.0
Shellfish Fishing	16.2	16.3	15.5	0.0	0.7	0.7
Subtotal	21.5	20.5	20.5	(0.6)	(0.1)	(0.7)
Seafood Processing						
Fresh and Frozen Seafood Processing	23.4	21.1	19.9	(2.4)	(1.2)	(3.5)
Fish and Seafood Merchant Wholesalers	4.8	4.1	4.1	(0.7)	0.0	(0.7)
Fish and Seafood Markets	4.8	5.1	5.0	0.2	0.0	0.2
Subtotal	33.1	30.2	29	(2.9)	(1.2)	(4.1)
Tourism						
Boat Dealers	11.6	11.7	11.4	0.1	(0.3)	(0.2)
Scenic and Sightseeing Water Transportation	2.5	2.9	3.0	0.4	0.1	0.5
Residential Property Managers	35.6	34.6	34.5	(1.0)	(0.1)	(1.0)
Marinas	5.8	5.9	5.3	0.1	(0.6)	(0.5)
Hotels (except Casino Hotels) and Motels	71.3	77.6	81.0	6.3	3.4	9.7
Full-Service Restaurants	180.8	186.1	190.5	5.3	4.4	9.7
Limited-Service Restaurants	106.2	109	111.2	2.8	2.2	5.0
Cafeterias, Grill Buffets, and Buffets	6.9	9.1	9.2	2.1	0.1	2.2
Snack and Nonalcoholic Beverage Bars	9.2	9.8	10.3	0.6	0.4	1.0
Food Service Contractors	19.2	21.4	21.5	2.2	0.1	2.3
Caterers	6.3	6.1	6.5	(0.3)	0.4	0.2
Drinking Places (Alcoholic Beverages)	12.9	13.0	13.6	0.1	0.6	0.7
Subtotal	468.3	487.1	498.0	18.8	10.9	29.7
Total Marine Related Job Earnings	522.5	537.9	547.5	15.3	9.6	25.0

Source: EMSI, 2011.4

¹Rounding errors

Appendix VI. Sales, in million \$, from Jobs in Commercial Fishing, Seafood Processing and Wholesalers, Boating, and Accommodations/Food Services, Baldwin and Mobile Counties. Negative values are in parentheses.¹

NAIC Sectors	2009 Sales	2010 Sales	2011 Sales	2010–2009 change	2011–2010 change	2011–2009 change
Commercial Fishing						
Finfish Fishing	7.8	6.8	7.9	(1.0)	1.0	0.0
Shellfish Fishing	25.9	26	24.8	0.1	(1.2)	(1.1)
Subtotal	33.7	32.8	32.7	(0.9)	(0.1)	(1.1)
Seafood Processing						
Fresh and Frozen Seafood Processing	140.0	125.9	118.9	(14.2)	(7.0)	(21.2)
Fish and Seafood Merchant Wholesalers	10.8	9.2	9.2	(1.6)	0.0	(1.6)
Fish and Seafood Markets	10.5	11.0	10.9	0.5	(0.1)	0.4
Subtotal	161.3	146	139	(15.3)	(7.1)	(22.3)
Tourism						
Boat Dealers	25.5	25.8	25.1	0.3	(0.7)	(0.4)
Scenic and Sightseeing Transportation,	5.0	5.8	6.0	0.7	0.2	0.9
Residential Property Managers	239.1	232.4	232	(6.7)	(0.4)	(7.0)
Marinas	14.6	14.9	13.4	0.3	(1.5)	(1.2)
Hotels (except Casino Hotels) and Motels	240.7	262.1	273.6	21.4	11.5	32.8
Full-Service Restaurants	493.7	508.2	520.3	14.5	12.1	26.6
Limited-Service Restaurants	290.0	297.6	303.7	7.6	6.1	13.7
Cafeterias, Grill Buffets, and Buffets	19.0	24.8	25.0	5.8	0.2	6.1
Snack and Nonalcoholic Beverage	25.1	26.8	28.0	1.6	1.2	2.9
Food Service Contractors	52.4	58.4	58.7	6.0	0.3	6.3
Caterers	17.3	16.5	17.7	(0.8)	1.2	0.4
Drinking Places (bars)	35.3	35.5	37.2	0.3	1.7	2.0
Subtotal	1,457.7	1,508.7	1,540.8	51.0	32.0	83.0
Total Marine-Based Job Earnings and Changes	1,652.8	1,687.6	1,712.4	34.8	24.9	59.6

Source: EMSI, 2011.4

¹Rounding errors

NAIC Sector Code	Sector Name	2009 Jobs	2010 Jobs	2011 Jobs	2010-2009 change	2011-2010 change	2011-2009 change
11	Agriculture, forestry, fishing and hunting	4,755	4,505	4,525	(250)	20	(230)
21	Mining, quarrying, and oil and gas extraction	1,354	1,458	1,607	104	149	253
22	Utilities	1,229	1,221	1,209	(8)	(12)	(20)
23	Construction	25,800	24,644	23,288	(1,156)	(1,356)	(2,512)
31-33	Manufacturing	20,172	19,911	20,492	(261)	581	320
42	Wholesale Trade	11,266	10,224	10,131	(1,042)	(93)	(1,135)
44-45	Retail Trade	38,079	37,868	38,385	(211)	517	306
48-49	Transportation	11,988	11,836	12,022	(152)	186	34
51	Information	3,486	3,230	3,154	(256)	(76)	(332)
52	Finance/Insurance	13,063	13,113	13,388	50	275	325
53	Real Estate, renting and leasing	17,172	16,860	16,592	(312)	(268)	(580)
54	Professional Services	16,368	16,241	16,026	(127)	(215)	(342)
55	Management	953	1,013	1,013	60	-	60
56	Administration	22,468	23,574	25,230	1,106	1,656	2,762
61	Educational services	9,154	9,542	9,318	388	(224)	164
62	Healthcare	30,819	31,019	30,986	200	(33)	167
71	Arts, Entertainment, and Recreation	4,431	4,401	4,248	(30)	(153)	(183)
72	Accommodations and Food Services*	24,549	24,864	25,402	315	538	853
81	Other Services	22,684	22,756	22,695	72	(61)	11
90	Government	39,846	39,933	39,131	87	(802)	(715)
	Overall total	319,636	318,213	318,842	(1,423)	629	(794)

Source: EMSI, 2011.4

NAIC Sector Code	Sector Name	2009 Earnings (\$ millions)	2010 Earnings (\$ millions)	2011 Earnings (\$ millions)	2010-2009 change (\$millions)	2011-2010 change (\$millions)	2011-2009 change (\$millions)
11	Agriculture, forestry, fishing and hunting	132	129	131	(4)	2	(2)
21	Mining, quarrying, and oil and gas extraction	80	79	97	(1)	17	16
22	Utilities	126	153	148	27	(5)	23
23	Construction	1,189	1,216	1,165	27	(52)	(25)
31-33	Manufacturing	1,289	1,411	1,485	122	74	197
42	Wholesale Trade	652	619	619	(32)	(1)	(33)
44-45	Retail Trade	1,043	1,057	1,088	14	31	45
48-49	Transportation	631	657	686	26	29	55
51	Information	169	167	165	(2)	(2)	(4)
52	Finance/Insurance	767	653	676	(114)	23	(91)
53	Real Estate, renting and leasing	366	362	358	(4)	(4)	(8)
54	Professional Services	814	831	830	17	(1)	16
55	Management	54	77	76	22	(0)	22
56	Administration	527	630	671	103	41	144
61	Educational services	276	292	284	15	(8)	8
62	Healthcare	1,496	1,503	1,511	7	8	15
71	Arts, Entertainment, and Recreation	68	66	66	(1)	(1)	(2)
72	Accommodations and Food Services*	417	437	449	19	12	32
81	Other Services	479	481	487	2	6	8
90	Government	2,228	2,270	2,226	42	(44)	(2)
	Overall total	12,804	13,090	13,218	286	128	414

Source: EMSI, 2011.4

NAIC Sector Code	Sector Name	2009 Sales (\$millions)	2010 Sales (\$millions)	2011 Sales (\$millions)	2010-2009 change (\$millions)	2011-2010 change (\$millions)	2011-2009 change (\$millions)
11	Agriculture, forestry, fishing and hunting	449	437	448	(12)	10	(1)
21	Mining, quarrying, and oil and gas extraction	359	353	428	(5)	74	69
22	Utilities	683	826	800	143	(26)	117
23	Construction	2,581	2,639	2,527	58	(112)	(54)
31-33	Manufacturing	7,076	7,959	8,294	883	335	1,218
42	Wholesale Trade	1,466	1,394	1,392	(73)	(1)	(74)
44-45	Retail Trade	2,319	2,350	2,420	31	70	101
48-49	Transportation	1,569	1,689	1,777	120	88	208
51	Information	756	736	728	(21)	(8)	(28)
52	Finance/Insurance	2,478	2,178	2,245	(300)	67	(233)
53	Real Estate, renting and leasing	2,180	2,132	2,104	(49)	(27)	(76)
54	Professional Services	1,432	1,465	1,461	33	(5)	28
55	Management	97	137	136	40	(0)	39
56	Administration	972	1,258	1,337	285	79	365
61	Educational services	435	462	450	27	(12)	16
62	Healthcare	2,644	2,653	2,669	9	16	25
71	Arts, Entertainment, and Recreation	155	152	151	(3)	(1)	(4)
72	Accommodations and Food Services*	1,186	1,243	1,279	57	36	93
81	Other Services	912	918	930	6	11	17
90	Government	4,425	4,508	4,428	83	(80)	3
	Overall total	34,175	35,489	36,003	1,314	515	1,828

Source: EMSI, 2011.4

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