



September 28, 2010

The Southeastern Louisiana University Business Research Center (BRC) is jointly operated by the Southeast Louisiana Business Center and the Southeastern College of Business. The BRC provides applied economic analyses and research studies that aid business and economic development efforts for the five-parish Northshore region of southeast Louisiana. The Center represents one aspect of the University's commitment to economic development in the region.

The Center is located in the Southeast Louisiana Business Center on Martens Drive, two blocks west of the main campus of Southeastern Louisiana University. The Business Research Center is a proud member of the Association for University Business and Economic Research (AUBER) and the Council for Community and Economic Research (C2ER).

The following study was commissioned by the Associated Branch Pilots, and was conducted using generally accepted research methods, models and techniques.

The information gathered and/or study results are for informational purposes only and are not intended to be used for investment or lending decisions. Research and results of this study do not represent any form of endorsement by Southeastern Louisiana University.

Sincerely,

A handwritten signature in black ink that reads 'William Joubert'.

William Joubert  
Director  
Business Research Center

**Southeastern Louisiana University Business Research Center**  
*A Collaborative Effort of the Southeast Louisiana Business Center and  
the Southeastern Louisiana University College of Business*

---

# OVER THE BAR

## **The Responsibilities and Economic Impacts of the Associated Branch Pilots**

---

September 2010

---



Southeastern Louisiana  
University  
Business Research Center  
&  
College of Business

Herb Holloway  
Dr. Abul Jamal  
William Joubert

---

## Table of Contents

INDEX OF TABLES .....	iii
INDEX OF FIGURES .....	iii
EXECUTIVE SUMMARY .....	1
INTRODUCTION.....	3
ANALYSIS METHODOLOGY.....	3
HISTORY OF THE ASSOCIATED BRANCH PILOTS.....	4
RESPONSIBILITIES OF BRANCH PILOTS.....	5
Responsibility for Valuable Cargo .....	6
Responsibility for Protecting the Environment.....	7
Responsibility for Protecting Human Lives .....	7
Responsibility for Maintaining Commerce and Trade .....	8
ECONOMIC IMPACTS OF ABP ACTIVITIES .....	10
Economic Impacts of Additional Cargo Facilitated by Bar Pilots .....	10
Economic Impacts of Pilotage Fees.....	12
Economic Impacts of Pilot Boat Fees .....	13
Total Estimated Economic Impacts of ABP Activities in 2009.....	14
SUMMARY.....	15
BIBLIOGRAPHY .....	16

## INDEX OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table 1	Foreign trade volume at Mississippi River ports used by vessels piloted by ABP pilots.....	9
Table 2	Additional tonnage and estimated value of cargo carried on vessels exceeding 43 feet in draft.....	12
Table 3	Estimated economic impacts of 1,198,017 metric tons of additional cargo loaded on vessels with drafts exceeding 43 feet: 2009.....	12
Table 4	Estimated economic impacts on the State of Louisiana from pilotage fees received by ABP in 2009.....	13
Table 5	Estimated economic impacts on the State of Louisiana from pilot boat fees generated by ABP in 2009.....	14
Table 6	Total estimated impacts of ABP activities on Louisiana’s economy in 2009.....	14

## INDEX OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
Figure 1	Geographic Division of Responsibilities among Louisiana River Pilots.....	6
Figure 2	Value of Imports and Exports Handled at Louisiana Ports of Call of ABP-Piloted Vessels.....	9

## EXECUTIVE SUMMARY

The Associated Branch Pilots (ABP) play an important role in Louisiana's economy and the Mississippi River commerce and transportation system.

Because of the treacherous and ever-changing conditions at the mouth of the river, every vessel of 500 gross tons or greater is required by Louisiana law to be piloted by an ABP pilot between Pilottown and the Southwest Pass sea buoy if it is listed under a foreign flag, coming or going from/to a foreign port, or has foreign bound cargo. Branch pilots use their training, experience, and extensive local knowledge of river and channel conditions to safely guide vessels into and out of the heavily traveled river, 24 hours a day.

Branch pilots piloted vessels on 9,782 "turns" into or out of the river in 2009. Approximately 9,475 turns (96.9 percent) were cargo vessels and approximately 204 turns (2.1 percent) were cruise or passenger ships. Tonnage of the ships piloted ranged from 100 to 159,178 deadweight tons (DWT).

Based on data from USA Trade Online, total vessel imports and exports through all of the Louisiana ports between Baton Rouge and the mouth of the river were valued at \$57.2 billion in 2009. ABP pilotage and associated pilot boat fees charged to cargo vessels totaled \$27.0 million, or approximately 0.047 percent (\$47 per \$100,000) of total cargo value.

Each time an ABP pilot boards a vessel to guide it through one of the river's passes, they assume several responsibilities:

- Responsibility for valuable cargo – Based on the categories used by USA Trade Online, cargo value per metric ton ranged from \$80 to \$196,620 in 2009. Because of the vast size of some of the vessels piloted by branch pilots, the value of a full load of even relatively low-value items can reach into the tens of millions of dollars. A full cargo of crude oil on the largest tankers piloted by branch pilots would be valued at over \$40 million.
- Responsibility for protecting the environment – Branch pilots work completely within the Louisiana estuary, a very productive and sensitive ecosystem. Not only would an oil or chemical spill have the potential to do much harm, it could also be very expensive to clean up. An analysis by the authors using one model estimated clean-up costs for a 25,000-barrel crude oil spill at approximately \$9.4 million.
- Responsibility for protecting human life – The lower Mississippi River is a busy waterway, with high volumes of vessel traffic of diverse types. Branch pilots assume responsibility for the lives of the crew members on board the ship they are piloting, as well as those of other vessels on the river. Since 1994, the number of human lives in the hands of branch pilots has escalated tremendously due to the growth of the cruise industry based in New Orleans. ABP pilots piloted cruise ships carrying almost 470,000 passengers in 2009.
- Responsibility for maintaining commerce and trade – The Louisiana ports on the lower Mississippi River are some of the busiest in the nation, with the Ports of South Louisiana, New

Orleans, and Baton Rouge consistently ranking in the top 20 or 30 nationwide for volume and value of cargo. All of this cargo must pass through the mouth of the river under the guidance of ABP pilots. One estimate during 2008 placed the impact of a river closure at \$275 million per day (USFWS, 2009).

In addition to facilitating all of the commerce and trade that uses the lower Mississippi River, the Associated Branch Pilots generate economic impacts for the State of Louisiana's economy in three more direct ways:

1. By allowing deep-draft vessels to carry additional cargo
2. Through the pilotage fees they collect from shipping companies
3. Through the pilot boat fees they generate for their boat service contractor.

The U.S. Corps of Engineers' program plan for the lower Mississippi River requires that a channel depth of 45 feet be maintained, with a general understanding that vessels should load to a draft of 43 feet to allow two feet of water under their keel. Because of the branch pilots' knowledge of the river and their close monitoring of currents, tides, and weather conditions, they are able to safely and successfully bring vessels into the river to a maximum draft of 47 feet.

In 2009, branch pilots piloted vessels with drafts exceeding 43 feet on 283 turns, allowing those vessels to bring 1.2 million metric tons of additional cargo valued at an estimated \$462 million into and out of the river. This enhanced the efficiency and profitability of both the cargo owners and shipping companies, and helped Louisiana ports remain competitive with other U.S. deepwater ports.

The extra tonnage that ABP pilots allowed the deep-draft vessels to carry contributed an estimated \$84.6 of total economic impacts to the state's economy in 2009, supporting 577.5 jobs with earnings of \$23.3 million, and generating an estimated \$5.8 million of state and local tax revenues.

ABP collected \$22.3 million in fees for their services in 2009, and generated \$5.2 million in pilot boat fees for their boat service contractor. Almost all of these pilotage and pilot boat fees are paid by out-of-state or international shipping companies.

When these fees were rolled into the Louisiana economy by ABP and their pilot boat contractor, they generated an estimated output impact of \$43.3 million in 2009, supporting 218.7 full and part-time jobs with earnings of \$15.3 million, and contributing an estimated \$1.5 million of tax revenues to Louisiana's state and local governments.

When the impacts from the additional cargo on deep-draft vessels and the impacts from pilotage and pilot boat fees are summed together, the activities of the Associated Branch Pilots contributed almost \$128 million of output to Louisiana's economy in 2009, supporting 796 jobs with \$38.6 million of salaries and wages for Louisiana residents, and providing \$7.3 million in state and local tax revenues.

## INTRODUCTION

The Associated Branch Pilots (ABP), also known as bar pilots, are a vital part of the Mississippi River transportation system and the significant trade and commerce that depend on that system. They play a significant role in keeping this thriving system working smoothly, safely, and efficiently.

This study will review the history of ABP and the day-to-day activities of the bar pilots and discuss the economic, environmental, and human life responsibilities which are part of these daily activities.

The total volume and value of cargo carried on ships piloted by ABP pilots in 2009 (and prior years) will be discussed, as well as how these totals are increased by the special skills and knowledge possessed by bar pilots. The handling of this increased volume of cargo attributable specifically to the bar pilots will also be analyzed for its economic impact on the state's economy.

The impacts of the pilotage fees received by ABP and the pilot boat fees received by their boat service contractor will also be analyzed to measure their effects on the state's economic output, earnings, employment, and state and local taxes collected.

Finally, these impacts will be summarized in order to provide an overall view of the contributions of the Associated Branch Pilots to Louisiana's economy and Mississippi River commerce.

## ANALYSIS METHODOLOGY

This analysis utilized the input-output method to estimate the economic impacts of ABP's activities on the Louisiana economy. The input-output method is based on the economic linkages between various sectors and industries, which cause every dollar of expenditures to "ripple through" the study area's economy. This results in expenditures being "multiplied" to various degrees, causing a larger economic effect than the original amount of the expenditure. These "ripple" or "multiplier" effects continue to contribute to the economic impact of the expenditure until the effects leave the study area or become too small to measure.

The total economic impact of a company, industry, event, or project consists of *direct*, *indirect*, and *induced* effects. *Direct* effects are the immediate effects on business activity in the area occurring as a direct consequence of the company, industry, event, or project being studied.

*Indirect* effects occur in sectors that supply materials, goods, and services to the directly-affected businesses. For example, the company that delivers groceries to ABP's pilot station in Venice is *directly* impacted by ABP's grocery purchases. Wholesalers and food manufacturers which provide grocery items to the grocer are *indirectly* impacted when the grocer purchases the items ordered by ABP. In turn, businesses that provide goods and services to the wholesalers and manufacturers are indirectly impacted by the increased activity of those sectors. These indirect impacts continue to contribute to the economic impact until the subsequent expenditures become too small to measure or leave the study area, e.g. if a manufacturer purchases containers from an out-of-state company, that portion of the impact chain would stop. However, other expenditures by the manufacturer, such as utilities and

maintenance on equipment, or locally-printed labels for the finished product, may continue to accrue to the study area.

*Induced* effects are created by the increase in consumer spending generated by increased payrolls in the directly and indirectly impacted industries. In the example above, ABP has employees and their associated wages, the grocer will hire employees (or increase the work hours of existing employees) to pack and deliver the groceries to the pilot station, and the food manufacturers will hire workers to produce the items ordered by the grocer for ABP. All of these employees in the various industries will then spend their wages on food, housing, entertainment, etc., creating further economic benefits in the region. The sum of all of the impacts deriving from increased payroll spending is the induced effect.

The sum of the direct, indirect, and induced effects represents the total economic impact. The total economic impact divided by the direct effect yields the economic impact *multiplier* of the company, industry, event, or project in question. In most cases, the multiplier will be between 1.0 and 2.0.

IMPLAN Professional 2.0<sup>®</sup> software and structural matrices (Minnesota IMPLAN Group) were utilized to complete the analysis of estimated economic impacts of ABP's pilotage fee receipts and the pilot boat fees received by their boat service contractor on the state of Louisiana. The impacts of additional cargo carried on deep-draft vessels were analyzed using a model developed by the authors based on MARAD Port Economic Impact Kit Version 1.1 software (U.S. Department of Transportation, Maritime Administration), multipliers for IMPLAN Sector 338, and a report on the economic impacts of the ports of Louisiana (Ryan, February 2001).

## HISTORY OF THE ASSOCIATED BRANCH PILOTS

From the times of the earliest French settlements in south Louisiana, specially trained river pilots have been housed near the mouth of the Mississippi River to assist vessels with the difficult entry into and exit from the river. The river drops its heavy sediment load when it empties into the Gulf, creating a "bar" of silt at the river's mouth.

France built a small settlement near the river's bar called "La Balise" ("the Mark") for the tower they built to help ships find their way. Spanish rule continued the piloting tradition at La Balise where pilots served under Chief Pilot Juan Ronquillo for many years.

With the Louisiana Purchase in 1803, navigation on the river became the responsibility of the young United States. Following Louisiana's entry into the Union, Jackson's victory over the British, and the invention of the steamboat, New Orleans was poised to become an important international port and center of trade.

However, the entrances to the Mississippi River that served the port of New Orleans were constantly changing and the deepest pass was still only 18 feet deep, a very effective barrier to heavily-laden cargo ships that were forced to call on other ports instead.

The solution to this commerce-stifling problem came from Captain James B. Eads, a civil engineer, inventor, and shipbuilder from St. Louis who devised a system of jetties to direct the river's currents and



use the river's own flow to scour out deeper passages. Captain Eads was granted a performance-based contract by the United States Government in 1875 to deepen South Pass and maintain a 30-foot channel depth for the next 20 years (U.S. Army Corps of Engineers).

Captain Eads succeeded in his efforts, and by January 1877 South Pass reached a depth of 30 feet, which Captain Eads maintained until his maintenance contract ended in 1901 (ibid).

Eads' jetties allowed the Port of New Orleans to prosper and opened up the entire Mississippi River Valley to water-based transport. In 1875, the year Eads began work on the jetties, 6,875 tons of goods were shipped from St. Louis through New Orleans to Europe. In 1880, the year after he completed the jetties, 453,681 tons of cargo were shipped along the same route (ibid).

Leading up to this time, pilots at the mouth of the river continued to work independently, building settlements on the different passes (or "branches") at the mouth of the river and racing each other out in sleek sailing vessels when a ship was sighted to be the first to "speak" a ship (i.e., offer their services). Once the ship was guided safely over the bar at the mouth of the river, the captain of the ship released the pilot to await the next ship needing his services. As can be imagined, competition for jobs piloting ships was fierce and sometimes brutal!

Pilots first began to be regulated in 1805, and a revision of the Pilot Law in 1837 established rules for proficiency and personal conduct of the pilots. In 1847 the Louisiana Pilots Association was formed, with a stated rule of "first come, first served" – meaning that whichever pilot reached and boarded a ship first got the job.

The charter of the Associated Branch Pilots dates back to 1879 (about the time Eads' jetties were nearing completion), when 38 bar (or "branch") pilots established a business partnership agreement assigning the responsibilities of the individual pilots and the organization. This marked the beginning of the shared business arrangement which continues today.

Pilots are appointed and commissioned by the Governor of Louisiana. State law requires that there be a minimum of 25 active pilots at all times. There are currently 45 members of the Associated Branch Pilots.

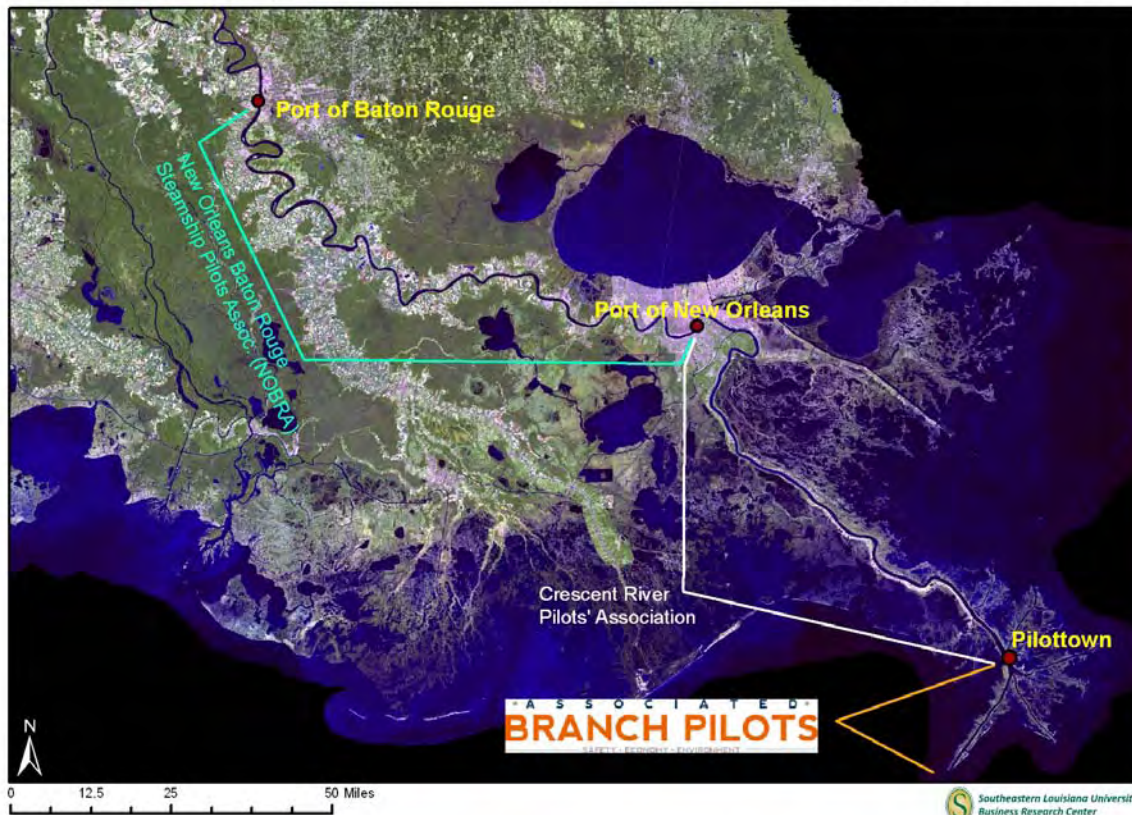
## **RESPONSIBILITIES OF BRANCH PILOTS**

Branch or "bar" pilots guide ocean-going vessels into and out of the Mississippi River through the various passes which empty into the Gulf of Mexico. The strong currents and ever-changing contour of the water-bottom create treacherous conditions for large vessels trying to navigate through the passes.

For this reason the State of Louisiana requires that any vessel of 500 gross tons or greater must be piloted by an ABP pilot between Pilottown and the Southwest Pass sea buoy if it is listed under a foreign flag, coming or going from/to a foreign port, or has foreign bound cargo. Between Pilottown and New Orleans vessels are piloted by members of the Crescent River Pilots' Association, and between New Orleans and Baton Rouge by pilots from the New Orleans Baton Rouge Steamship Pilots Association (NOBRA) (see Figure 1).

This division of duties ensures that pilots have the utmost “local knowledge” of their assigned stretch of the river and stay abreast of any changes or hazards that may impact vessel traffic.

**Figure 1. Geographic Division of Responsibilities among Louisiana River Pilots**



### **Responsibility for Valuable Cargo**

ABP pilots in 2009 piloted vessels carrying cargo ranging in value from approximately \$0.08 per kilogram (\$80 per metric ton) for “Salt; Sulfur; Earth & Stone; Lime & Cement Plaster” to \$196.62 per kilogram (\$196,620 per metric ton) for “Aircraft, Spacecraft, And Parts Thereof” (USA Trade Online).

Of course, the immense capacity of many of the ships piloted by bar pilots can cause the shipload value of even low per-unit value cargoes to be very large. One of the largest bulk carriers using the river, the *Gina Juliano* (length of 266 m, breadth of 40 m, 122,829 deadweight tonnage (DWT)), could carry approximately \$18 million worth of “Ores, Slag, and Ash”, the second-lowest valued cargo category. ABP’s average total pilotage plus pilot boat fees charged to the *Gina Juliano* per “turn”, i.e. per trip into or out of the river, were \$5,756.36, or 0.032 percent (about 1/30<sup>th</sup> of one percent) of the value of this example cargo.

The bulk carrier *Koutalianos* (230 m length, 37 m breadth, 92,710 DWT) would have a cargo valued at approximately \$35 million if filled with soybeans, the top export by total value leaving Louisiana ports in

2009. The *Koutalianos* paid ABP average pilotage plus pilot boat fees of \$4,761.84 per turn, which would equate to 0.014 percent of her cargo value if she were carrying soybeans.

The crude oil tanker *Sonangol Luanda* (274 m length, breadth of 48 m, 159,178 DWT) can bring approximately 600,000 barrels of crude oil from Angola in southwest Africa when loaded to the maximum draft for the Mississippi River. At a price of \$70/barrel, her cargo would have a total value of \$42 million. The *Sonangol Luanda* paid the highest average pilotage plus pilot boat fees of any vessel in 2009, \$6,735.15, based on her tonnage and draft. However, because of the high volume and total value of her cargo, these fees equaled only 0.016 percent of the value of her crude oil cargo.

Total vessel imports and exports through all of the Louisiana ports between Baton Rouge and the mouth of the river were valued at \$57.2 billion in 2009 (USA Trade Online). Total pilotage fees charged by ABP to cargo vessels in 2009 were approximately \$21.9million, and pilot boat fees charged to these vessels by ABP's pilot boat contractor totaled approximately \$5.0 million. Combined, these pilotage and pilot boat fees total \$27.0 million, or approximately 0.047 percent (not quite 1/20<sup>th</sup> of one percent) of total cargo value.

Pilotage fees have become less expensive in relation to the value of cargo over recent years. While the value of foreign cargo shipped to and from lower Mississippi River ports increased 63 percent from 2001 to 2009, total pilotage fees increased only 9 percent. Pilotage fees paid by shipping companies in 2009 represented an average of 0.047 percent of the value of cargo carried, or \$47 for every \$100,000 worth of cargo.

### ***Responsibility for Protecting the Environment***

The marshes of coastal Louisiana are some of the most productive estuarine areas in the world, serving as habitat and nursery grounds for numerous species of marine life, land mammals, reptiles, and birds. They also are part of a very fragile and sensitive ecosystem, which has been battling the impacts of coastal erosion, subsidence, and saltwater intrusion.

Protecting Louisiana's environment while facilitating the trade on which Louisiana's ports and industries depend requires the safe and efficient transport of myriad types of cargo on large ships into and out of the mouth of the river, a task the bar pilots successfully carried out approximately 27 times per day in 2009.

### ***Responsibility for Protecting Human Lives***

The lower Mississippi River is a very busy waterway, with high volumes of cargo ships, offshore supply/service vessels, commercial and recreational fishing boats, and various other vessels using the river 24 hours a day in all weather conditions. Bar pilots must remain alert and vigilant to protect both the crews of the ships they are piloting as well as the crews and passengers of all the other vessels using the river.

In recent years, the number of human lives under the bar pilots' care has increased dramatically as New Orleans has become a major cruise ship port. The Port of New Orleans served approximately 80,000

cruise ship passengers in 1993, the year their cruise ship terminal began operations. The number of passengers embarking from New Orleans grew to a peak of 734,643 in 2004 and was still 469,594 in 2009 (Port of New Orleans, 2010), even after the recent economic downturn.

The largest cruise ship currently based out of New Orleans is the *Carnival Triumph*, which carries over 3,800 passengers and crew. All of these passengers rely on bar pilots to see them safely and uneventfully out of the river, into the Gulf, and on the way to their exotic destinations, and then to return them the same way at the conclusion of their cruise.

And the services of the bar pilots add very little to the costs per passenger paid by cruise ship companies. Although the cruise ships based in New Orleans are large ships in length and breadth, they are of relatively low tonnage and draft compared to cargo vessels, so their pilotage fees are comparatively low. The pilotage fees charged by ABP to cruise ships in 2009 averaged less than \$1.00 per passenger per round trip into the Gulf and back into the river.

### ***Responsibility for Maintaining Commerce and Trade***

The Louisiana ports along the Mississippi River are some of the busiest in the nation and are significant to the national economy. According to 2008 data from the U.S. Army Corps of Engineers, Waterborne Statistics Center published on the website of the American Association of Port Authorities (<http://aapa.files.cms-plus.com/Statistics/2008%20U.S.%20PORT%20RANKINGS%20BY%20CARGO%20TONNAGE.pdf>), the ports of South Louisiana, New Orleans, Plaquemines, and Baton Rouge ranked second, eleventh, fifteenth, and twenty-seventh, respectively, among U.S. ports in total volume of foreign trade.

In a 2005 report by the Congressional Research Service (Cieslak, 2005), the ports of South Louisiana, New Orleans, and Baton Rouge ranked third, fourth, and fifteenth, respectively, among U.S. ports in total trade (volume) by port to all world ports for the years 2002-2004. Based on dollar value of trade, New Orleans, South Louisiana, and Baton Rouge ranked 12<sup>th</sup>, 16<sup>th</sup>, and 27<sup>th</sup>, respectively.

Cieslak also cites a statement from the North American Export Grain Association that, as of 2005, these three ports handled 55 – 70 percent of all U.S. exports of corn, soybeans, and wheat.

Import and export data (USA Trade Online) were downloaded and aggregated for the ports used by vessels piloted by bar pilots. Volume and value of imports, exports, and total trade for 2003-2009 are summarized in Table 1 and Figure 2.

Total value of foreign trade at these lower Mississippi River ports ranged from \$32.7 billion in 2003 to a peak of \$88.5 in 2008, before declining to \$57.2 billion in 2009 as a result of the global recession (the value of imports were down by almost half).

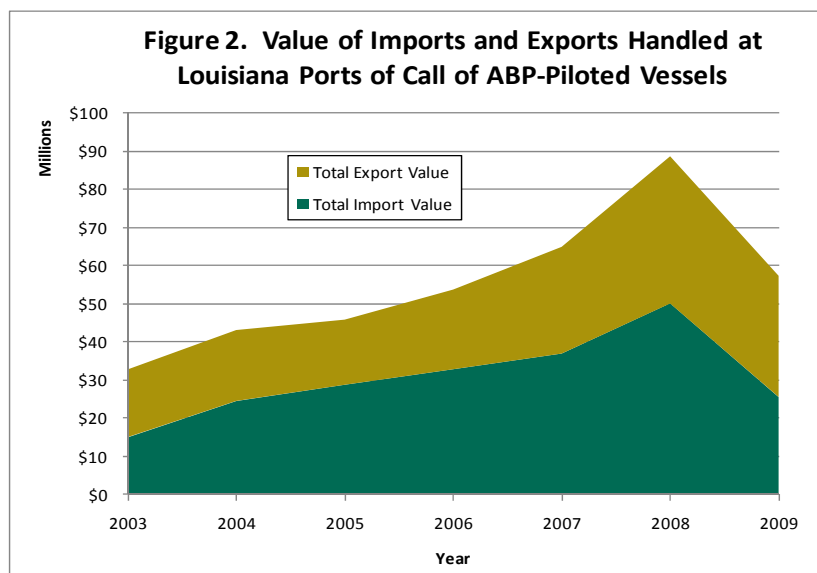
Obviously the value of the cargo moving up and down the river is impressive, and as discussed earlier, it reflects the value of what's entrusted to the bar pilots for safe passage, but the real measure of the cargo trade's importance to the State's economy is the economic impacts of the ports. This includes all

of the direct port activities such as loading and unloading, fuel sales, etc. but also the related business activities such as trucking, rail, ship maintenance, tug services, crew services and supplies, etc.

**Table 1. Foreign trade volume at Mississippi River ports used by vessels piloted by ABP pilots.**

Source: USA Trade Online

Year	Total import volume (metric tons)	Total import value (\$000)	Total export volume (metric tons)	Total export value (\$000)	Total foreign trade volume (metric tons)	Total foreign trade value (\$000)
2003	66,675,452	\$ 14,972,663	84,423,541	\$ 17,750,554	151,098,993	\$ 32,723,217
2004	83,685,829	\$ 24,461,790	83,586,784	\$ 18,559,455	167,272,612	\$ 43,021,245
2005	87,748,286	\$ 28,691,686	74,425,441	\$ 17,060,377	162,173,727	\$ 45,752,063
2006	85,201,162	\$ 32,765,808	85,307,769	\$ 20,825,010	170,508,931	\$ 53,590,818
2007	80,620,184	\$ 36,859,690	90,086,473	\$ 27,938,409	170,706,656	\$ 64,798,099
2008	76,826,123	\$ 49,970,174	91,256,340	\$ 38,540,128	168,082,463	\$ 88,510,301
2009	54,424,196	\$ 25,510,699	92,732,893	\$ 31,700,764	147,157,104	\$ 57,211,463



Ryan (February 2001) estimated that the economic output impacts of the Louisiana port industry totaled \$10.65 billion in 1999, supporting 92,566 jobs with earnings of \$1.95 billion. When these values are adjusted for inflation using the CPI (All Urban Consumers), they would equal approximately \$13.71 billion of output impact and \$2.51 billion of earnings in 2009 dollars.

These thriving port activities rely on efficient and orderly transportation into and out of the river. Any disruption of service would have immediate and far-reaching ripple effects as ships are detained at docks; other ships are held in the Gulf waiting for dock space; trucks, railroad cars, and barges are backed up waiting to be unloaded or to pick up their loads which were stuck on the ships in the Gulf; and stores and industries ran out of supplies or had to shut down because they couldn't ship products out.

The more finely-tuned “just-in-time” inventory model increasingly used by most industries only heightens the demand for a smoothly-functioning, reliable transportation system.

A report by the U.S. Fish and Wildlife Service (USFWS, 2009) after a 2008 closure of the river sheds light on the economic costs of disruptions to river traffic (authors’ emphasis):

*“Some of the most newsworthy effects were economic. Because of the large volume of commercial traffic on the river, **there was a \$275 million impact on the first day the river was closed**, increasing on subsequent days until the reopening.”*

(Note: The \$275 million daily impact estimate was attributed in many newspaper articles and other documents to Gary LaGrange, CEO of the Port of New Orleans.)

The cruise industry may be even more dependent on reliable, incident-free travel than the shipping industry, because the schedules and itineraries of thousands of passengers are also involved. And the cruise industry is an important contributor to the economies of New Orleans and the state. A study prepared for the Cruise Lines International Association (Business Research & Economic Advisors, 2009) estimates that the cruise industry contributed \$163 million in direct spending and \$121 million in earnings to Louisiana’s economy in 2008, supporting 3,168 jobs with average annual wages of \$38,300.

## **ECONOMIC IMPACTS OF ABP ACTIVITIES**

The Associated Branch Pilots impact Louisiana’s economy by enabling ships to carry more cargo and by the fees they and their contract pilot boat service receive. These impacts will be analyzed separately in the following sections.

### ***Economic Impacts of Additional Cargo Facilitated by Bar Pilots***

Since 1994, the U.S. Army Corps of Engineers has undertaken continual dredging to maintain the Mississippi River from Baton Rouge to the Gulf at a project depth of 45 feet (prior to 1994 it was 40 feet). It is understood that this depth is designed to accommodate vessels with drafts of up to 43 feet, allowing a two-foot “cushion” of water beneath the keel.

However, given their training and experience, extensive local knowledge, and constant monitoring of channel conditions, weather, and tides, the bar pilots are able to safely and successfully guide vessels with drafts of up to 47 feet into and out of the river.

On the large ocean-going vessels piloted by the bar pilots, that additional four feet of available draft can mean thousands of tons of additional cargo, increasing the efficiency and profitability for both the ship and cargo owners and helping Louisiana ports compete with other deepwater ports.

In 2009 bar pilots handled 233 different vessels with drafts exceeding 43 feet on 283 turns. Drafts ranged from 43.08 feet to 47 feet, summing to 513 draft-feet of additional loading capacity on these vessels.

An individual vessel's TPC (tons per centimeter) factor can be used to calculate how many additional tons of cargo would have been added to reach the deeper draft, i.e. how many tons would have been required to cause the vessel to go from a draft of 43 feet to a draft of 45 feet, for example. One centimeter equals .39 inches, or one inch equals 2.54 centimeters.

The ABP ship and turn data from 2009 contained TPCs for 133 of the 233 deep draft ships, obtained from online subscription databases and other sources. In order to calculate the additional tonnage carried on all of the vessels, the authors used linear and log linear regression models based on vessel type and deadweight tonnage to estimate the TPCs for the remaining 100 vessels.

TPCs ranged from 51.8 for the *Prisco Irina*, a 50,923 DWT chemical/product tanker to 117.4 for the *Nordic Jupiter*, a 157,411 DWT crude oil tanker. This means that while it would take 51.8 metric tons of additional cargo to cause the *Prisco Irina* to settle one centimeter lower in the water, it would take 117.4 metric tons to lower the *Nordic Jupiter* an equal amount. Converting the TPCs to TPIs (tons per inch), the amounts of additional cargo necessary to cause the *Prisco Irina* and *Nordic Jupiter* to settle one **inch** lower in the water would be 131.6 and 298.2 metric tons, respectively. Using average cargo values for 2009, the values of this additional cargo would be \$51,163 and \$115,934, respectively.

Based on the known and estimated TPCs and the recorded drafts for each turn of the deep draft vessels, the 513 draft-feet of additional capacity made possible by the skill and knowledge of the bar pilots allowed these 233 vessels to carry an additional 1,198,017 metric tons of cargo on their 283 deep draft turns in 2009. The additional tonnage and estimated value of cargo by vessel type is shown in Table 2.

In order to estimate the value of this additional cargo, import and export data by product type from USA Trade Online was segregated based on the type of vessel likely to carry them. Some vessel types, such as crude oil and chemical tankers, only have one or two product categories that could possibly be carried in them. Others, such as bulk carriers and container ships, could be used to ship several of the 93 product categories reported for Louisiana's river ports at various times, and some product categories (e.g. "Wood and Articles Thereof") may include some items shipped on bulk carriers and some shipped in containers. So the estimated cargo values in Table 2 should be taken only as rough estimates, but the authors felt this method would be more accurate than using the overall average value per ton for all cargo (\$388.78), although the total estimated value in Table 2 is very similar to what would have been derived using the overall average value (1,198,017 tons x \$388.78/ton = \$465,765,049).

In order to estimate the economic impacts on the state from the handling of this additional cargo, an impact model was developed by the authors based on data from Ryan's study on the impacts of the ports of Louisiana (Ryan, February 2001), earnings and employment multipliers from the MARAD Port Economic Impact Kit software, and tax multipliers from IMPLAN Professional 2.0® Sector 338, which includes NAICS Code 488320 (Marine Cargo Handling Services).

The estimated economic impacts from the handling of the 1.2 million tons of additional cargo are shown in Table 3.

<u>Vessel Type</u>	<u>Turns in 2009</u>	<u>Additional Metric Tons of Cargo allowed by Deeper Draft</u>	<u>Estimated Cargo Value per Metric Ton</u>	<u>Estimated Total Value of Additional Cargo</u>
Bulk Carrier	161	584,780	\$ 306.47	\$ 179,219,639
Bulk/Oil Carrier	12	90,647	\$ 337.38	\$ 30,582,489
Chemical Tanker	2	10,798	\$ 772.18	\$ 8,338,243
Chemical/Products Tanker	2	5,054	\$ 762.26	\$ 3,852,726
Container Ship	6	10,656	\$ 2,878.98	\$ 30,678,551
Crude Oil Tanker	66	342,853	\$ 368.29	\$ 126,269,720
Crude Oil/Products Tanker	19	83,902	\$ 368.29	\$ 30,900,411
Products Tanker	<u>15</u>	<u>69,326</u>	\$ 752.34	\$ <u>52,156,838</u>
<b>Totals</b>	<b>283</b>	<b>1,198,017</b>		<b>\$ 461,998,618</b>

Output Impact	\$ 84,603,939
Earnings Impact	\$ 23,302,801
Jobs Supported	577.5
State/Local Tax Impact	\$ 5,805,268

The extra 1.2 million tons of cargo that the expertise and knowledge of the bar pilots allowed the deep draft vessels to carry in 2009 generated estimated output effects of \$84.6 million on the Louisiana economy, supporting 577.5 full- and part-time jobs with earnings of \$23.3 million. The economic activity and earnings are estimated to have yielded \$5.8 million in state and local tax receipts.

### ***Economic Impacts of Pilotage Fees***

Pilotage fees are set by the Louisiana Pilot Fee Commission and are based on the draft and tonnage of the vessel. Pilotage fees are paid by the boat owner or shipping companies, and no state or local tax revenues are involved.

Bar pilots piloted 9,782 turns in 2009. The most commonly piloted vessels were bulk carriers, which accounted for 41 percent of the turns, followed by chemical/products tankers at 13.6%. However, the list of vessels piloted also included such diverse types as crew and supply boats, naval ships, tugs, a fishing boat, research survey vessels, and yachts.



The average tonnage for all vessels piloted in 2009 was 45,875 DWT, while the average draft was 29.46 feet. The average draft charge was \$1,469.66 and the average tonnage charge was \$811.56, for a total combined average pilotage fee of \$2,281.22. This yielded total pilotage receipts by ABP of \$22.3 million in 2009.

Essentially all of these pilotage fees are paid to ABP by the out-of-state or international shipping companies that own or operate the vessels, and represent net, new dollars to the Louisiana economy. The ABP uses a portion of these fees to pay their operating expenses to local businesses and professionals, and to pay staff salaries. These salaries, along with the net ABP income which is distributed to the pilot members, are spent in the communities where these individuals live for housing, transportation, food, entertainment, etc.

When the pilotage fees were analyzed using the IMPLAN® model for the State of Louisiana, the results were the estimated impacts shown in Table 4.

Pilotage fees received	\$ 22,314,886
Total estimated economic impact	\$ 35,184,661
Total estimated earnings impact	\$ 12,303,911
Est. number of full- and part-time jobs supported	175.2
Estimated state and local taxes generated	\$ 1,087,434

The \$22.3 million of pilotage fees received by ABP in 2009, when cycled through the economy of the state, had a total estimated impact of \$35.2 million and generated an estimated \$1.1 million in state and local taxes. Of most importance to the residents of the state, the economic activity produced by the pilotage fees supported a total of 175.2 full- and part-time jobs with earnings of \$12.3 million.

### ***Economic Impacts of Pilot Boat Fees***

Bar pilots are delivered to and picked up from vessels by a contracted boat service which is paid directly by the shipping company.

The contractor charges \$420.00 to deliver or pick up a pilot from Southwest Pass and \$111.30 to deliver or pick up a pilot at Venice (Pilottown). Each turn for a vessel, whether incoming or outgoing, will involve one pilot boat trip to Venice and one to Southwest Pass, so the pilot boat fees paid per turn are \$531.30 ( $\$420.00 + \$111.30 = \$531.30$ .)

When multiplied by the 9,782 vessel turns handled by ABP in 2009, the result is \$5.2 million in pilot boat fees that were received by the contractor for transporting ABP pilots ( $9,782 \times \$531.30 = \$5,197,176.60$ .) These fees are utilized by the contractor to purchase and maintain their boats, buy fuel, maintain and equip their offices, purchase supplies, hire local professionals, and pay salaries to their boat captains and on-shore staff.

When analyzed using IMPLAN® Sector 334 (Water Transportation) in the State of Louisiana model, the \$5.2 million in pilot boat fees generated by ABP in 2009 produced the estimated economic impacts shown in Table 5.

Pilot fees generated	\$ 5,197,177
Total estimated economic impact	\$ 8,103,995
Total estimated earnings impact	\$ 3,015,816
Est. number of full- and part-time jobs supported	43.5
Estimated state and local taxes generated	\$ 418,626

### ***Total Estimated Economic Impacts of ABP Activities in 2009***

The previous three sections of this report have documented and analyzed the economic impacts on the State of Louisiana from three aspects of bar pilot activities in 2009:

1. the impacts from additional cargo carried on deep-draft vessels allowed by the bar pilots ability to safely pilot vessels with drafts exceeding 43 feet (Table 4)
2. the impacts from \$22.3 million in pilotage fees paid to ABP by shipping companies for pilotage services (Table 5)
3. the impacts from \$5.2 million in pilot boat fees generated by ABP for their boat service contractor (Table 6).

Table 6 sums these separate impacts together to calculate the total estimated impacts that the Associated Branch Pilots had on Louisiana's economy in 2009.

	Impacts of <u>Additional Cargo</u>	Impacts of <u>Pilotage Fees</u>	Impacts of Pilot <u>Boat Fees</u>	<b>Total Combined Economic Impacts</b>
Total est. economic impact	\$ 84,603,939	\$ 35,184,661	\$ 8,103,995	<b>\$ 127,892,595</b>
Total est. earnings impact	\$ 23,302,801	\$ 12,303,911	\$ 3,015,816	<b>\$ 38,622,528</b>
Total est. number of jobs supported	577.5	175.2	43.5	<b>796.2</b>
Total est. state and local taxes generated	\$ 5,805,268	\$ 1,087,434	\$ 418,626	<b>\$ 7,311,328</b>

## SUMMARY

The Associated Branch Pilots are an integral part of the Mississippi River transportation system and provide a vital service to the ocean-going cargo vessels and cruise ships that call on Louisiana ports from Baton Rouge to the mouth of the river.

These ports handled 147.2 million metric tons of imports and exports in 2009, valued at \$57.2 billion. All of this cargo entered or exited the river on vessels piloted by bar pilots, who handled 9,475 turns of cargo vessels in 2009.

Bar pilots also piloted New Orleans-based cruise ships on 203 turns in 2009, safely guiding almost 470,000 passengers into the Gulf to start their cruises, and back into the river on their return voyage home.

While contributing to the massive impacts that all of the lower Mississippi River commerce has on Louisiana's economy, the Associated Branch Pilots also enhanced the economy in three more direct ways in 2009:

1. By using their skills, experience, and local knowledge to safely pilot vessels exceeding the 43 foot "recognized" maximum draft for the lower Mississippi River, allowing deep-draft vessels to push their drafts to as much as 47 feet and carry 1.2 million metric tons of additional cargo
2. By collecting \$22.3 million in fees from the ships they piloted and putting this "new money" to work in their local economies by paying ABP operating expenses, staff salaries, and the pilots' own living expenses
3. By generating \$5.2 million in pilot boat fees for their boat service contractor – more new money infused into Louisiana's economy

These three activities combined to have an estimated total impact of almost \$128 million on Louisiana's economy in 2009, supporting 796 full- and part-time jobs with earnings of \$38.6 million. This economic activity is estimated to have generated over \$7.3 million in state and local taxes.

## BIBLIOGRAPHY

Business Research & Economic Advisors. 2009. "Executive Summary: The Contribution of the North American Cruise Industry to the U.S. Economy in 2008." Retrieved on August 18, 2010 from <http://www.cruiseindustryfacts.com/media/newsroom/data-and-reports/Executive%20Summary%20-%202008%2007-28-09.pdf>.

Cieslak, Vanessa. 2005. "Ports in Louisiana: New Orleans, South Louisiana, and Baton Rouge." Congressional Research Service: CRS Report for Congress. Order Code RS22297. October 14, 2005. Retrieved August 17, 2010 from <http://www.nationalaglawcenter.org/assets/crs/RS22297.pdf>.

Port of New Orleans. 2010. Personal communication on August 16, 2010.

Ryan, Timothy P. February 2001. "The Economic Impacts of the Ports of Louisiana and the Maritime Industry." University of New Orleans. Retrieved August 24, 2010 from [http://portsoflouisiana.org/documents/Economic\\_Impacts\\_of\\_the\\_Ports\\_Of\\_Louisiana\\_and\\_the\\_Maritime\\_Industry\\_%28Ryan\\_2001%29.pdf](http://portsoflouisiana.org/documents/Economic_Impacts_of_the_Ports_Of_Louisiana_and_the_Maritime_Industry_%28Ryan_2001%29.pdf).

USA Trade Online. Data sets downloaded for 2003-2009 for both imports and exports for the ports of Avondale, Baton Rouge, Destrehan, Good Hope, Gramercy, New Orleans, Port Sulphur, and St. Rose. Retrieved June 24 – June 30, 2010 from <http://www.usatradeonline.gov/>.

U.S. Army Corps of Engineers. New Orleans District. Eads' South Pass Jetties. Brochure. Retrieved August 17, 2010 from <http://www.mvn.usace.army.mil/PAO/BRO/EADSbrochure.PDF>.

USFWS. 2009. "Barge DM932 Oil Spill, Mississippi River: New Orleans, Louisiana." U.S. Fish & Wildlife Service After Action Report. Summer 2009. Retrieved on August 19, 2010 from <http://www.fws.gov/contaminants/Documents/DM932Spillreport.pdf>.