

# CRS Report for Congress

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## Trade in the U.S. Gulf Region: Hurricanes Katrina, Rita and Beyond

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### Summary

This report examines trade entering and leaving the United States through the Gulf of Mexico and its 16 major ports — a region extending from southern Florida to southern Texas. It is designed as a tool for planning or reaction — as a resource to help quickly identify some of the potential trade effects of any natural or manmade disaster that might strike the U.S. Gulf coast. Included are five graphs, a map, and a table summarizing specific trade data for the 16 ports. Finally, this report looks at potential trade implications of any such disasters, and identifies some policy issues. It will not be updated.<sup>1</sup>

### Purpose of This Report

The Gulf of Mexico can be likened to a gigantic harbor whose span is roughly equal to one-half the distance between the U.S. Atlantic and Pacific coasts. It is not surprising, therefore, that roughly 80% of the value of all trade that enters or leaves the United States along the Gulf coast does so by water.

The strength of the Gulf harbor is that it is somewhat protected and centrally located for easy water access to Europe and the Mediterranean, Africa, South America, or, through the Panama Canal, Asia. The problem with the Gulf, however, is that, because of recent weather changes, it has been the site of increased numbers of higher intensity hurricanes. These include Hurricane Katrina, which struck the Gulf Coast on August 29, 2005, and Hurricane Rita which struck the Gulf coast on September 24, 2005, temporarily closing or partially closing five of the 16 trade ports<sup>2</sup> and paralyzing the massive network

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<sup>1</sup> Carolyn Smith and Michael Donnelly, KSG-FDT, CRS, provided statistical assistance.

<sup>2</sup> See **table 1** footnotes for a list of ports affected. For other reports on Hurricane Katrina and its effects on commerce, see: CRS Report RL33075, *U.S. Agriculture After Hurricane Katrina: Status and Issues*, by Randy Schnepf and Ralph Chite; CRS Report RS22257, *Hurricane Katrina: Shipping Disruptions*, by John Frittelli; CRS Report RL33124, *Oil and Gas Disruption from*

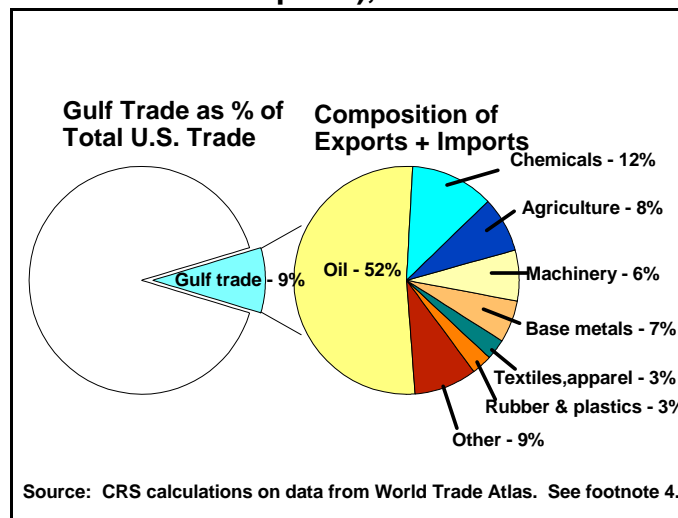
of oil and gas facilities, including drilling platforms, pipelines, and refineries. Such disasters can result in considerable disruption to trade as commodities — some of them perishable — are delayed, diverted, destroyed, or simply hung up and unable to get through blocked ports.

The U.S. National Hurricane Center has reported that it expects recent wind and water temperature changes in the Atlantic Ocean which spawned these more intense storms to continue — possibly for 25 years or more.<sup>3</sup> This report examines trade entering and leaving the United States through the Gulf of Mexico's 16 major ports, which together account for 99% of all Gulf waterborne trade. It is designed as a tool for planning or reaction — as a resource to help quickly identify some of the potential trade effects of any natural or manmade disaster that might strike the U.S. Gulf coast. Finally, this report looks at potential trade implications of any such disasters, and identifies some policy issues.

## Trade Through U.S. Gulf Ports

Along the Gulf lie 16 of the 41 largest U.S. ports (see map, **figure 6**, p. 6). Houston, the Gulf's largest, ranks 4<sup>th</sup> and New Orleans, the second largest, ranks 12<sup>th</sup> in size (based on total trade value — see **table 1**, p. 6) among all U.S. ports for waterborne trade. Three-quarters of imports and exports of the 16 Gulf ports are from three industries: oil, agriculture, and chemicals. This specialization results in large part from geography: Because the Gulf area has traditionally been rich with oil and gas, the processing industry for these resources grew up around them, making the Gulf a magnet for additional oil and gas imports. The chemical industry and many of its products derive, in turn, from crude oil. Symbiotically, they also feed into the agricultural industry. Agricultural exports through Gulf ports owe their abundance to the barge-based Mississippi River transportation system, which carries products from at least 16 states cheaply and efficiently, and deposits them in New Orleans or nearby ports.

**Figure 1. Composition of Waterborne U.S. Gulf Trade (\$198 billion in Exports and Imports), 2004**



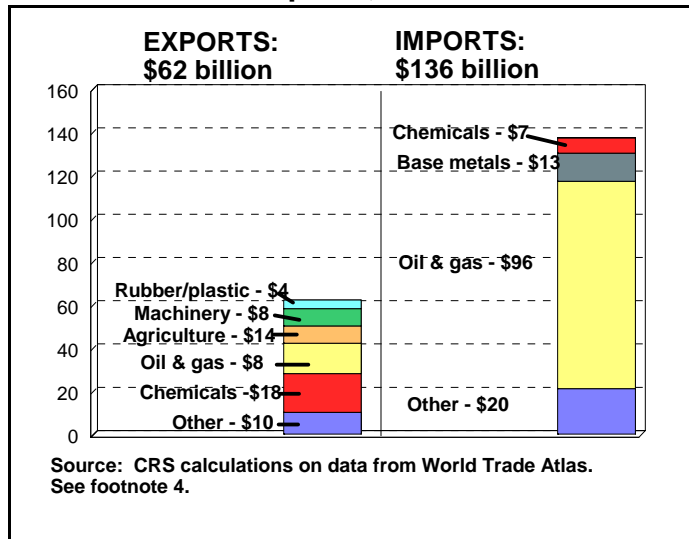
*Hurricanes Katrina and Rita*, by Lawrence Kumins and Robert Bamberger; and CRS Report RS22297, *Ports in Louisiana: New Orleans, South Louisiana, and Baton Rouge*, by Vanessa Cieslak.

<sup>3</sup> Interview with meteorologist Stanley Goldenberg of the National Hurricane Center, reported in *Katrina: Why It Became a Man-made Disaster; Where It Could Happen Next*, *National Geographic* Special edition, Fall, 2005, p. 35.

Overall, (See figure 1) waterborne exports and imports that pass through U.S. Gulf of Mexico ports account for less than one-tenth of U.S. trade (9%), but a much greater share of the oil (52%), agricultural (8%), and chemical (12%) industries. The remaining quarter of that trade is mostly machinery, base metals, textiles/apparel, and rubber/plastics.<sup>4</sup>

Figure 2 shows the relative size and composition of U.S. Gulf exports and imports separately: Imports, at \$136 billion in 2004, are more than twice the value of exports, at \$62 billion; and oil imports, at \$96 billion clearly dominate Gulf imports (accounting for 70%) and account for nearly half (48%) of all Gulf trade.

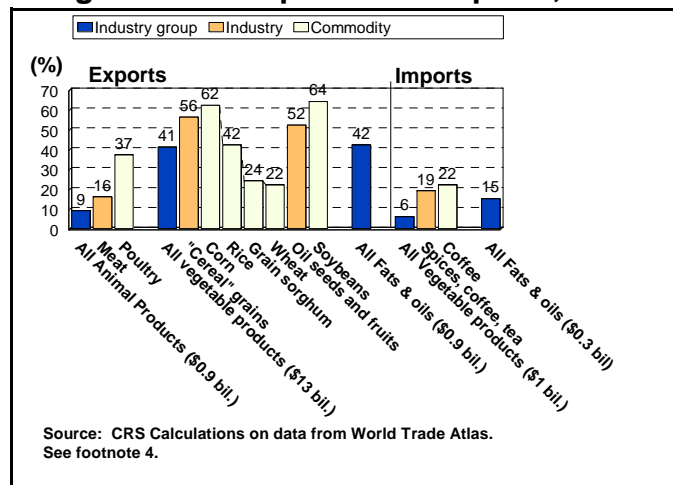
**Figure 2. \$ Value of U.S. Gulf Exports and Imports, 2004**



### Agriculture

The United States is the world's largest agricultural exporter, facilitated by the Mississippi River, which is an important component of the U.S.'s comparative advantage in agricultural trade. The river is the central artery of a 14,500 mile inland waterway. Its barge traffic takes agricultural commodities — especially grain — down to ocean-going vessels in New Orleans and South Louisiana, and delivers such imports as coffee back up the river.

**Figure 3. Gulf Port Share of U.S. Agricultural Exports and Imports, 2004**



Each grain-laden barge can carry the equivalent of roughly 15 rail cars or 60 trucks, at a fraction of the cost of these other modes of transportation. In 2004, agricultural exports in the Gulf totaled \$14 billion. Of this, \$13 billion was in vegetable products, and nearly \$1 billion was in animal products. Vegetable exports (see figure 3) were dominated

<sup>4</sup> All data in this report reflect the Harmonized Tariff System, which groups numerous commodities into 99 industry classifications which are, in turn, aggregated into 22 separate industry groups. All data are taken from World Trade Atlas, published by Global Trade Information Services, Inc. and represent export and import data from the Bureau of the Census manipulated by the U.S. Maritime Administration to reflect waterborne trade.

by corn (62% of U.S. total), rice (42%), grain sorghum (24%), wheat (22%), soybeans (64%), and fats and oils (47%). Nearly 40% of all U.S. Gulf “cereal” grain exports go to four countries: Japan, Mexico, Egypt, and S. Korea. Animal products were dominated by poultry (mostly frozen) exports, accounting for 37% of all U.S. poultry exports, much of which goes to Russia.

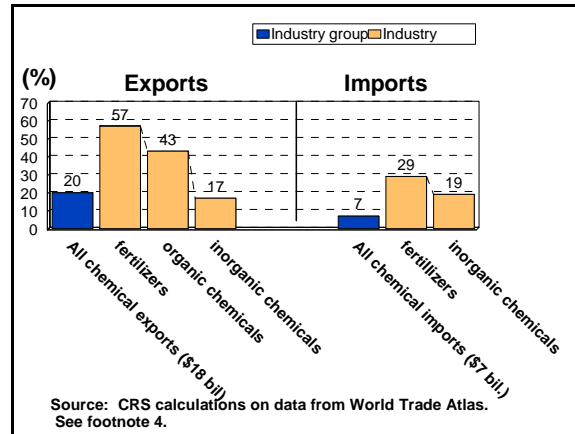
## Oil and Gas

The Gulf of Mexico is one of the great oil and gas production and refining regions in the world. It is a major region for oil and gas infrastructure, including pipelines, oil and gas wells, oil and gas platforms, and a refinery at virtually every port. Nearly 60% of all oil consumed in the United States is imported. Roughly half (see **figure 2**) of all imported oil enters the United States through the Gulf — much of it from Mexico, Venezuela, Saudi Arabia, Nigeria, and Iraq. Primary oil exports are to Mexico and include MBTE, a gasoline additive/blending component that has fallen into disfavor in the United States but is used by others elsewhere, and such “heavy” products as petroleum coke, which has various uses, and is something the United States can spare.

## Chemicals

The numerous chemical plants in the Gulf, particularly along the Texas and Louisiana Gulf coasts, account for a slightly greater share of Gulf exports and imports than does agriculture. Twenty percent of all U.S. chemical exports exit through Gulf ports (see **figure 4**), including 57% of all fertilizers, and 43% of all organic chemicals, to such countries as S. Korea, Mexico, and China. Twenty-nine percent of all fertilizer imports enter the United States through Gulf ports.

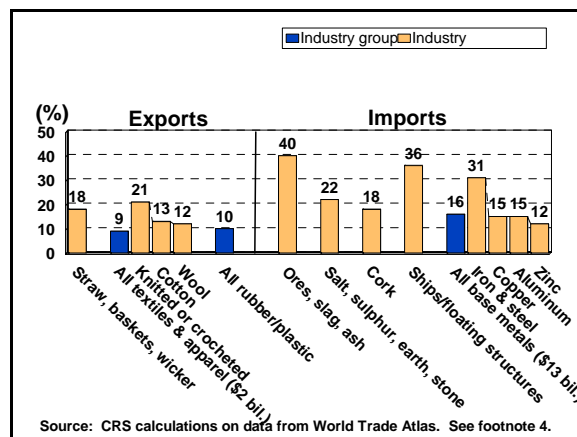
**Figure 4. Gulf Port Share of U.S. Chemical Exports and Imports, 2004**



## Other

**Figure 5** shows other major products *exported* through Gulf ports and their share of total such U.S. exports including textiles and apparel: knitted or crocheted fabrics (21%), cotton products (13%), wool (12%); and straw products (18%). Major products *imported* through these ports are base metals (16%), including iron and steel (31%), copper (15%), and aluminum (15%). These ports also serve as gateways to 40% of all ores, 36% of all vessels entering the

**Figure 5. Gulf Port Share of Other Major U.S. Gulf Exports and Imports, 2004**



United States (most of them for the oil platforms), 22% of all salt/sulphur, and 18% of all cork imported into the United States.

## Trade Implications and Policy Questions

The extent to which the key U.S. Gulf industries are affected by disasters in the Gulf area depends on which ports and industry infrastructures are affected. The 16 key ports in the Gulf of Mexico are depicted below in map form (**figure 6**) and in table form (**table 1**). For each port, table 1 lists (column 1) the name of the port and its ranking (based on total exports and imports) among all U.S. ports; the total 2004 trade value (column 2); the total value of that port's *exports* together with major exports and their share of that port's total (column 3); and the total value of that port's *imports* together with major imports and their share of that port's total (column 4).

If some ports are damaged, products can be shipped out of the country through other ports, but transportation costs may increase and perishable commodities may be lost. Although **figure 6** shows commodity *specialization*, by port, many ports export high volumes of key commodities. All 16 ports except Gulfport handle oil as an export or import and typically include refineries. All 16 ports export chemicals although only 10 specialize in chemical exports. Most grain exports pass through Texas or Louisiana. Only Pascagoula specializes in exporting poultry, although sizable quantities of poultry (not shown in table 1) also pass through Mobile, New Orleans Gulf Port, or Houston. Gulfport specializes in textile and apparel exports.

Hurricane Katrina closed or partially closed five main Gulf ports: New Orleans, South Louisiana, Mobile, Pascagoula, and Gulfport. Hurricane Rita affected two: Beaumont and Galveston. Most ports were quickly reopened. While some goods found other import or export routes, some oil production facilities have still not reopened at the time this report was published. Currently, monthly statistics on waterborne trade in U.S. Gulf ports are lagging economic activity by at least seven months. Thus, statistics from which to estimate changes in the value of exports and imports as a result of these hurricanes will likely not be available until about mid-2006. Meanwhile, the U.S. Census Bureau has begun releasing preliminary export and import data for all Gulf ports covering months since Hurricanes Katrina and Rita struck; however, these data have not been further refined by the U.S. Maritime Administration. These data are available at: [[http://www.census.gov/foreign-trade/Press-Release/gulf\\_index.html](http://www.census.gov/foreign-trade/Press-Release/gulf_index.html)]. With data from either source, however, it may be hard to separate out effects of Katrina from other effects such as overall weather and supply and demand — especially on agricultural products, which may vary considerably in tonnage and value from year to year.

The potential for additional hurricanes in the Gulf region in the coming years raises a number of trade policy questions. Some of the most important ones revolve around options for protecting the trade infrastructure, which includes the Mississippi River, grain storage elevators, the various ports, oil facilities in the Gulf of Mexico, and U.S. merchant vessels.

**Table 1. Commodity Specialization by Port: Waterborne Exports and Imports**

U.S. Gulf of Mexico Port and rank (total trade value) among all U.S. ports	Total 2004 trade value (\$mil.)	Total 2004 exports (in \$mil.), Major EXPORTS and share of total Port exports for each industry	Total 2004 imports (in \$mil.), Major IMPORTS and share of total Port imports for each industry
4. Houston, TX	\$65,899	\$29,064 (mil.): chemicals (32%), machinery (23%), oil (11%)	\$36,835 (mil.): oil (48%), base metals (14%), chemicals (9%)
*12. New Orleans, LA	\$22,171	\$9,579: vegetable products (37%), chemicals (23%), oil (12%)	\$12,592: base metals (37%), oil (24%), chemicals (9%)
15. Morgan City, LA	\$14,277	\$143: machinery (51%) floating vessels/docks (29%),	\$14,134: oil (100%)
*16. S. Louisiana	\$14,185	\$7,644: vegetable prods. (cereals & oil seeds) (79%)	\$6,541: oil (73%)
**18. Beaumont, TX	\$13,287	\$1,295: oil (51%), chemicals (32%), cereals (15%)	\$11,992: oil (98%)
20. Corpus Christi, TX	\$11,963	\$2,043: chemicals (48%), oil (32%) vegetable. prods. (13%)	\$9,920: oil (93%)
22. Texas City, TX	\$8,629	\$1,423: inorganic chemicals (75%)	\$7,206: oil (99%)
24. Port Arthur, TX	\$7,219	\$724: oil (63%), chemicals (27%)	\$6,495: oil (94%)
25. Freeport, TX	\$7,161	\$1,434: chemicals (62%), rubber/plastic (24%)	\$5,727 oil (94%)
27. Baton Rouge, LA	\$6,693	\$1,274: chemicals (76%), oil (19%)	\$5,419: oil (68%), iron/steel (18%)
31. Lake Charles, LA	\$6,055	\$806: oil (40%), chemicals (34%)	\$5,249: oil (98%)
*33. Mobile, AL	\$5,125	\$1,694: wood pulp (24%), oil (23%), chemicals (14%)	\$3,431: oil (56%), base metals (18%)
*35. Pascagoula, MS	\$4,642	\$764: poultry (29%), machinery (26%), oil (22%)	\$3,878: oil (94%)
*37. Gulfport, MS	\$3,977	\$1,622: textiles/apparel (60%), wood pulp (11%), machinery (8%), poultry (8%)	\$2,355: textiles & apparel (78%)
**40. Galveston, TX	\$3,289	\$703: cereals (49%), machinery (14%), oil (11%)	\$2,586: oil (67%), machinery (15%)
41. Tampa FL	\$3,197	\$1,735: fertilizer (85%)	\$1,462: inorganic chemicals (35%), oil (15%); vehicles (15%)
<b>Total: Gulf Ports</b>	<b>\$197,769</b>	<b>\$61,947</b>	<b>\$135,822</b>

\*Ports closed or partly closed by Hurricane Katrina; \*\* Ports closed or partly closed by Hurricane Rita. Source of data: CRS calculations on U.S. Customs data manipulated by the U.S. Maritime Administration.

**Figure 6. Sixteen Key Ports in the U.S. Gulf of Mexico**

Source: Map Resources. Adapted by CRS. (K.Yancey 11/18/05).