

# CRS Report for Congress

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## Hurricane Katrina: Shipping Disruptions

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### Summary

Hurricane Katrina damaged the nation's leading gateway for the import and export of many bulk materials. In addition to oil and gas suppliers, grain producers and the steel, chemical, and rubber industries are highly reliant on the ports along the Lower Mississippi River. While commercial shipping has been restored on a very limited basis, it is still uncertain when the region will be able to return to normal shipping operations. Obstacles to full operation include a lack of power, displaced port workers, missing channel buoys, and submerged debris in some ship channels. With the exception of one Gulf port, most ports suffered only minor damage to their terminal equipment. The extent of the damage, how soon normal port operations can resume, and which shippers in particular will have the hardest time adapting should the disruption continue for an extended period are of significant interest to Congress because these ports potentially affect the trade of 33 states that depend on the Mississippi River and its tributaries for shipping.

### Introduction

The Port of New Orleans, and its neighbors just upriver (the Port of South Louisiana and the Port of Baton Rouge) are unique because they connect with the nation's most extensive and heavily used inland waterway system for the transport of bulk materials – the Mississippi River. Oil and gas<sup>1</sup>, grain, steel, chemicals, and other primary products are transferred between ships and barges at these three ports. Damage caused by Hurricane Katrina has temporarily disrupted operations at these ports. The critical questions are: How long will shipping be disrupted? What are the obstacles to resuming normal operations? Which economic sectors will be most affected if the disruption to shipping continues for an extended period.

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<sup>1</sup> For more specific information on Hurricane Katrina's affects on oil and gas supply, see CRS Report RS22233, *Oil and Gas: Supply Issues After Katrina*. The Administration has also temporarily (until September 19th) waived the Jones Act for ships carrying petroleum products. The Jones Act (the 1920 Merchant Marine Act) restricts domestic waterborne transport to U.S. built, flagged, and crewed vessels. The temporary waiver is intended to facilitate transport of gasoline to the East Coast while pipelines are restored.

## Damage Assessments

**Ports.** Three of Louisiana's ports on the lower Mississippi River rank in the top ten in terms of total tonnage handled at U.S. ports. The Port of Baton Rouge and the Port of South Louisiana (between Baton Rouge and New Orleans on the Mississippi River) suffered minimal structural damage. Both ports report that their grain elevators and other cargo handling structures are intact. Both ports are key to grain exporters and petroleum importers. The Port of South Louisiana also handles imported aluminum ores and exports of lime, timber, sugar cane, cotton, rice, and resins. The Port of Baton Rouge additionally handles forest products, steel products, chemicals, and molasses. The Port of New Orleans reports that while it has been damaged, the port is workable. All four of its container gantry cranes are intact but two are not operational because of damage to electrical components. Some warehouses have sections of roof missing but are useable while repairs are made. The port handles containerized freight, imported coffee, rubber, metals, cotton, and oil, among other commodities.

All three lower Mississippi River ports are currently handling ships carrying relief supplies. The Port of New Orleans began limited commercial cargo handling on Monday, September 12<sup>th</sup>. The port's president is hoping that the port will be operating at 50% of normal operations by the end of the month and back to full operations within six months.

The Port of Gulfport (Mississippi) suffered a direct hit from the hurricane and has the severest structural damage. Gulfport is a leading gateway for containerized, imported fruit and vegetables from Latin America. It will have to be completely rebuilt.

The ports of Mobile, Alabama and Pascagoula, Mississippi experienced some damage to port buildings, but their infrastructure is basically intact. The Port of Mobile exports forest products, imports iron ore, and transfers coal and petroleum products in both directions. The Port of Pascagoula handles steel, refrigerated meat, and wood products, among other commodities.<sup>2</sup>

**Power and Workers.** With the exception of Gulfport which took a direct hit from the hurricane, the greatest impediment to the other ports' operations may be the lack of power and the fact that many of their workers are without housing. The Maritime Administration has mobilized seven ships from the National Defense Reserve Fleet (NDRF) to assist the ports.<sup>3</sup> Three of the ships will be used to provide temporary housing for port and petroleum industry workers; one ship, already stationed in New Orleans, is being used as the headquarters for Port of New Orleans staff; and the remaining ships are designed to provide cargo handling capabilities in damaged ports.

**Shipping Channels.** Up to the Port of Baton Rouge, the Mississippi River is dredged to accommodate ocean-going ships with a 48-foot draft. Upriver from Baton

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<sup>2</sup> For the latest information on the condition of the ports mentioned in this report as well as all other ports in the central Gulf region, see [<http://www.aapa-ports.org>] and click on "Hurricane Katrina - Port Updates."

<sup>3</sup> The NDRF is a fleet of militarily useful ships, usually used to support the U.S. Armed Forces in time of war or national emergency. This is the first time that these ships have been activated to assist in recovery from a domestic disaster.

Rouge, the river accommodates barge transport with a 12-foot draft. The downriver Mississippi shipping channel is currently open to two-way traffic but restricted to vessels with up to a 39-foot draft. Reportedly, there may be over 100 vessels of varying types submerged in the river. There are two unknown obstructions in the channel towards the mouth of the river, which is the reason for the current limit on vessel draft of 39-feet. The channel is open only during daylight hours because many of the channel signal buoys are missing or displaced. Ships normally transit the channel on a 24-hour basis. The Coast Guard is in the process of replacing, repairing, or repositioning navigational aids on the channels. The Coast Guard, the Army Corps of Engineers, and the National Oceanic and Atmospheric Administration are surveying ship channels for potential shoaling and underwater debris. Until the channel surveying is complete and obstructions are removed, ships are proceeding at minimum speeds. From Baton Rouge to New Orleans, the shipping channel extends about 172 miles. From New Orleans to the Gulf of Mexico, the channel is about 70 miles long.

The channel to the Port of Mobile is only slightly limited as to draft, but nighttime traffic is suspended because channel markings are not in place. The Port of Pascagoula reports that it has experienced only minimal shoaling in its channel.<sup>4</sup>

**Truck Routes.** Key truck links to the ports in the region are damaged. Interstate 10 across Lake Pontchartrain is severely damaged as is the causeway across the lake. In Mississippi, bridges on I-10 and U.S. 90 are demolished.

**Railroads.** New Orleans is an important rail hub, because like other cities in the middle of the country (Memphis, St. Louis, and Chicago) it is an interchange point between the western and eastern rail networks. All five major U.S. railroads (and one Canadian owned railroad) have tracks running into New Orleans. Therefore, New Orleans is not merely an origin or destination point for rail cargo, but also an interchange point for east-west cargo passing through New Orleans. Railroads with track coming into New Orleans from the West (Union Pacific, BNSF, and Kansas City Southern) and from the North (Canadian National) have reportedly suffered little damage.<sup>5</sup> However, railroads with track coming from the east suffered considerable damage. Norfolk Southern has replaced its track on a bridge over Lake Ponchartrain (the bridge was not damaged but the track was washed off the bridge by the hurricane) and one of its railyards in New Orleans was flooded. CSX suffered the most severe damage. CSX lost track and bridges that run parallel to U.S. highway 90 along the Gulf Coast and its railyard in New Orleans was flooded. Due to the damage of track east of New Orleans, rail cargo normally interchanged in New Orleans is instead being interchanged in Memphis or Birmingham.

## Implications for Shipping

While the operations personnel and logistics staff of carriers and shippers are closely monitoring the situation, they are busy finding the next best alternative for cargo that normally would be routed through ports damaged by Hurricane Katrina. Some types of

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<sup>4</sup> For Coast Guard updates on channel conditions, see [<http://www.uscgstormwatch.com>] and click on the “Port and Waterway Status” bar.

<sup>5</sup> *Transportation Weekly*, September 7, 2005, p.4.

cargoes will be easier to reroute than others. Bulk cargoes are more heavily dependent on the lower Mississippi River ports than other cargo types. Bulk commodities are closely tied to the lower Mississippi River ports because these ports are set up for barge to ship transfer. Non-bulk commodities, which more often move by rail and truck to make port connections, can more easily find a feasible alternative because rail and highway connections are common at most major ports, including neighboring ports in the Gulf region.

**Dry Bulk Cargo.** In addition to energy imports, much of the concern surrounding the potential impacts of Hurricane Katrina on shipping centers on the export of bulk grain. Bulk grain exports are particularly dependent on the ports of South Louisiana, Baton Rouge, and New Orleans. These ports serve as the primary transfer point from barges to ships for exported grains carried by barges down the Mississippi River from areas of production in the Midwest. If the Louisiana ports are not able to operate at full capacity in the coming weeks, some of this cargo may be diverted to other markets that do not utilize these ports. For example, some product could be moved by rail from the Upper Midwest to ports in the Pacific Northwest, to Great Lakes ports, or ports on the East Coast – but at significantly greater cost. A portion of the product could also move by rail to Texas Gulf ports or to Mexico and Canada. Another possibility is that a greater portion of the product may be sold domestically at reduced prices. However, it is improbable for a number of reasons that these alternatives would be able to absorb anything approaching the volumes that would otherwise be handled by the Louisiana ports. First, these alternative routes are traditionally used mostly by farmers located farther from the Mississippi River and its tributaries. Second, while railroads are an alternative, they are more costly than barges. Railroads also do not have the capability to suddenly handle a substantial amount of additional agricultural cargo. For the large export shipment sizes carried by barges, trucking is not a practical alternative. Limited alternatives for grain exporters may mean that the most attractive option in the short term is to hold their product until further information on the ports' availability is known.

Getting the ports and the river channel back into service quickly are critical for the export of bulk grain. The wheat harvest has already begun, but much of this product is shipped by rail to ports in the Pacific Northwest. Normally at this time of year, grain elevators are shipping out the remainder of last year's crop in order to empty their elevators in anticipation of this year's harvest. Hurricane Katrina has delayed this process. The peak of the corn and soybean harvest begins in late September, so the potential impact of Hurricane Katrina will depend on how quickly the ports and ship channels on the lower Mississippi can return to a normal operating tempo. The Upper Mississippi River and St. Lawrence Seaway are closed to navigation in the winter. If it is a matter of a few days before the ports are at full operating capacity, it may not significantly impact the grain markets, but if it is a matter of a few weeks, it will have a significant impact.<sup>6</sup>

In addition to grain products, other bulk cargoes heavily dependent on the lower Mississippi River ports are coal, chemicals, fertilizer, cement, scrap metal, and coffee.

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<sup>6</sup> For further information on the hurricane's impact on U.S. agriculture, see CRS Report RL33075, *U.S. Agriculture After Hurricane Katrina: Status and Issues*.

**Container and Break-bulk Cargo.** Relative to bulk cargo, containerized and break-bulk cargo may more readily find alternative shipping routes. Marine containers carry a wide variety of goods, but imports tend to be dominated by consumer goods and manufacturing parts. A marine container is about the size of a truck semi-trailer. Break-bulk is cargo that can not fit in a container, so it is handled on pallets, slings, or in individual pieces. Examples include steel products, rubber, construction materials, large machinery, and forest products. Because the Port of New Orleans is the closest to the Gulf of Mexico of the three lower Mississippi ports, it is the preferred port for container steamship lines. Gulfport, Mississippi is also a container port that handles bananas and other perishable goods. However, due to the relatively easier transferability of containers among ship, rail, and truck modes, it is less problematic to find alternative routes for containerized cargo. In addition, container ships, and break-bulk ships to a lesser degree, tend to call at more than one port within a coastal region. Therefore, the solution to a port closure is usually to divert the cargo to the next closest port on the schedule (e.g. Houston, or a Florida port). However, this option will add costs to the freight movement because it most likely entails a longer inland connection.

## Conclusion

Mississippi River commerce and the three southern Louisiana ports are interdependent, as are the Port of New Orleans and the City of New Orleans. A 2001 study of the economic impact of the Port of New Orleans on the state of Louisiana amounted to 107,000 jobs and \$13.4 billion in annual spending.<sup>7</sup>

Port disruptions may include much higher shipping costs, as well as transport capacity shortages in terms of grain exports. The economic impact will depend on how quickly vessel traffic can resume. Key factors appear to be how quickly the Coast Guard and Army Corps of Engineers can restore the shipping channels to full capacity and how quickly the ports can restore power and mobilize their workforce. At the same time, port traffic is likely to rapidly increase as New Orleans begins to rebuild.

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<sup>7</sup> Figures on the economic impact of the Port of New Orleans are available at [<http://www.portno.com>].