RITA Bureau of Transportation Statistics

Fact Sheet

U.S. Department of Transportation
Research and Innovative Technology Administration

May 2011

Preliminary Observations of the Tsunami's Impact on U.S. Trade and Transportation With Japan

By Sean Jahanmir

The United States faces potential ramifications from the damage to Japan's freight transportation system caused by the March 2011 earthquake and tsunami. During that time, the United States may face lower levels of both air and maritime imports in automobiles and parts, high-end electronics and devices such as semiconductors, and specialty chemicals. Damaged equipment, loss of power and disrupted intermodal infrastructure in Japan reduced shipping capacity and interfered with international trade links. The map (figure 1) shows the air and sea ports that were most affected: Sendai, Onahama, Hachinohe, and Kashima.[1] The sea port of Sendai was the largest of the affected ports, handling 155,611 twenty-foot equivalent unit (TEU) cargo containers in 2010.[2]

The disruption of Japan's transportation and distribution networks impacted industrial supply chains in the United States. On March 21, General Motors announced that a shortage of electronic parts arriving from Japan forced the temporary closing of pickup truck manufacturing and assembly plants in New York and Louisiana.[3] Other North America based automobile manufacturers, including Toyota, Nissan, and Honda, also suffered supply disruptions and shortages of essential automotive parts, such as electronics and paint pigments, from Japan.[4]

Figure 1 Air and Seaports Impacted by Earthquake and Tsunami

SOURCES: Derived by U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, from multiple data sources.

For the past 5 years, Japan has been America's number two trade partner for both maritime and air modes of freight transport with $173 billion of total imports and exports traded in 2010 (tables 1, 2, 3, and 4).[5] Japan is the top export and import partner for the Chicago,

[1] Leach, P., Ship Lines Suspend Service at Three Japanese Ports (Mar. 15, 2011), Journal of Commerce, available at http://www.joc.com/maritime/maersk-suspends-service-three-japanese-ports as of Mar. 18, 2011. Inchcape Shipping Services, available at http://www.iss-shipping.com/NewsDetails.aspx?newsid=5468, http://www.iss-shipping.com/NewsDetails.aspx?newsid=5462 as of May 6, 2011

[2] Alphaliner Weekly Newsletter, Volume 2011 Issue 12, (Mar. 15, 2011), available at http://www.alphaliner.com/liner2/research_files/newsletters/2011/no12/Alphaliner%20Newsletter%20no%2012%20-%202011.pdf, as of Apr. 21, 2011. TEUs = twenty-foot equivalent units. One 20-foot container equals one TEU, and one 40-foot container equals two TEUs.

[3] GM production halt, layoffs in N.Y. due to Japan disaster (Mar. 21, 2011), USA TODAY, available at http://content.usatoday.com/communities/driveon/post/2011/03/gm-stops-production-lays-off-workers-in-ny-due-to-japan-disaster/1, as of Mar. 22, 2011

[4] Blair, G., Cars after Japan's quake: Toyota, Nissan, and Honda plan to restart production (Apr. 5, 2011), The Christian Science Monitor, available at http://www.csmonitor.com/World/Asia-Pacific/2011/0405/Cars-after-Japan-s-quake-Toyota-Nissan-and-Honda-plan-to-restart-production, as of Apr. 5, 2011

[5] See U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov, as of Mar. 18, 2011

Table 1 Top 5 U.S. Maritime Freight Export Partners

(Actual U.S. dollars, not adjusted for inflation)

Trading partner	2008	2009	2010
China	44,735,180,024	44,827,918,467	58,066,419,511
Japan	33,327,764,015	25,189,507,435	30,005,059,398
Mexico	14,918,570,965	11,395,908,625	16,894,116,293
South Korea	19,287,605,687	15,849,930,290	20,560,393,322
Brazil	17,596,192,218	13,064,846,164	19,676,493,215

SOURCE: U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov as of Mar. 18, 2011.

Table 2 Top 5 U.S. Maritime Freight Import Partners

(Actual U.S. dollars, not adjusted for inflation)

Trading partner	2008	2009	2010
China	250,796,169,688	210,598,526,533	250,729,212,352
Japan	102,928,262,022	67,165,150,962	84,704,322,986
Mexico	46,503,614,617	28,336,091,221	37,457,665,128
Germany	57,163,062,703	39,711,076,045	47,891,732,258
Venezuela	51,117,945,908	27,877,342,114	32,706,928,497

SOURCE: U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov as of Mar. 18, 2011.

Table 3 Top 5 U.S. Air Freight Export Partners

(Actual U.S. dollars, not adjusted for inflation)

Trading partner	2008	2009	2010
United Kingdom	33,812,526,330	29,179,626,854	30,513,794,767
Japan	27,917,784,489	22,766,113,724	26,386,742,191
China	21,169,984,872	19,517,186,243	27,331,668,385
Germany	28,123,622,499	24,048,534,514	25,643,502,223
Hong Kong	13,669,098,841	13,001,207,385	17,282,265,342

SOURCE: U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov as of Mar. 18, 2011.

Table 4 Top 5 U.S. Air Freight Import Partners

(Actual U.S. dollars, not adjusted for inflation)

Trading partner	2008	2009	2010
China	74,102,403,402	73,416,358,699	98,893,809,087
Japan	32,944,369,986	25,955,076,370	32,241,439,451
Germany	31,821,173,800	24,220,447,163	27,342,341,255
Ireland	25,503,165,075	22,188,648,869	26,670,909,941
United Kingdom	27,483,724,960	25,681,277,699	23,278,231,298

SOURCE: U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov as of Mar. 18, 2011.

Table 5 Top 10 U.S. Imports From Japan
(Actual U.S. dollars, not adjusted for inflation)

Commodity	2008	2009	2010
Motor vehicles and parts	52,661,231,099	31,490,001,538	41,486,123,165
Nuclear reactors, boilers, machinery and parts	29,471,873,283	19,413,247,180	24,814,928,769
Electric machinery, sound equipment, TVs and related equipment and parts	21,163,091,972	15,368,396,077	18,321,856,062
Optical, photographic, medical, surgical instruments	6,416,496,533	4,839,471,008	6,123,378,971
Organic chemicals	2,966,769,172	2,829,523,190	2,975,018,903
Rubber and related articles	2,157,261,980	1,743,790,184	2,418,470,261
Articles of iron or steel	2,098,749,394	1,863,382,664	1,932,751,670
Plastics and articles thereof	1,890,727,085	1,466,707,064	2,024,628,360
Pharmaceutical products	1,407,954,905	1,759,095,255	1,990,064,258
Miscellaneous chemical products	1,811,806,892	1,254,867,047	1,519,922,986

SOURCE: U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov as of Mar. 18, 2011.

Table 6 Top 10 U.S. Exports to Japan
(Actual U.S. dollars, not adjusted for inflation)

Commodity	2008	2009	2010
Optical, photographic, medical, and other surgical instruments	6,820,326,191	5,847,358,016	7,227,884,367
Nuclear reactors, boilers, machinery parts	6,400,841,568	4,485,139,432	5,191,365,830
Electric machinery, sound equipment, TV equipment and parts	5,209,534,955	4,047,290,969	4,317,366,065
Cereals and grains	5,865,233,669	4,146,658,274	4,195,825,747
Aircraft, spacecraft, and related parts	6,451,322,721	5,330,327,132	5,110,543,714
Pharmaceutical products	1,630,789,523	2,257,440,586	3,026,356,389
Plastics and related articles	1,981,361,408	1,403,718,837	2,052,228,735
Mineral fuel, oils, mineral wax	1,293,079,985	886,851,965	1,816,590,116
Oil seeds, misc grains, seeds, fruits, plants	2,003,350,928	1,699,036,702	1,767,203,400
Organic chemicals	1,948,891,703	1,222,995,383	2,274,419,953

SOURCE: U.S. Census Bureau's USA Trade Online Database, available at http://www.usatradeonline.gov as of Mar. 18, 2011.

Illinois air freight gateway.[6] According to Bureau of Transportation Statistics data, Japan ranked 4th in the world's top 10 merchandise trade countries from 2004 to 2010.[7] See table 5 for a list of top 10 U.S. imports from Japan.

Maritime port operations in affected areas of northeastern Japan may be disrupted until necessary repairs are made. American firms may seek to obtain these products from alternate producers both internationally and domestically while waiting for factories, supply chains, and transport networks in Japan to recover.

U.S. air and maritime exports to Japan may increase, such as grains and agricultural products, steel and building products, and materials related to energy production to help aid in recovery, and rebuilding of the affected region; see table 6 for a list of top 10 U.S. exports to Japan.

Japan is the world's third-largest oil consuming country (4.4 million barrels per day in 2010) after the United States.[8] According to the Energy Information Administration (EIA), Japan lacks natural energy resources and is capable of meeting only 16 percent of its power demand from domestic production. Closure of the Fukushima nuclear reactors and related damage and disruption to electrical grids, and oil and natural gas facilities, may prompt Japan to seek higher imports of alternative energy sources including fossil fuels. The Fukushima Dai-ichi power plant had a total production capacity of 12,000 megawatts; with the removal of that energy source, EIA reports that industry estimates expect oil consumption to increase by 238,000 million barrels per day as a substitution.

[6] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, America's Freight Transportation Gateways 2009, available at http://www.bts.gov/publications/americas_freight_transportation_gateways/2009, as of Mar. 18, 2011.

[7] U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, America's Container Ports 2011, based on data from World Trade Organization, World Trade Organization, Trade Statistics, available at http://stat.wto.org/Home/WSDBHome.aspx, as of Sept. 18, 2010

[8] Energy Information Administration, available at http://www.eia.doe.gov/cabs/Japan/pdf.pdf, as of Mar. 18, 2011

About This Fact Sheet

Sean Jahanmir is a Transportation Industry Analyst in the Bureau of Transportation Statistics (BTS) and prepared this fact sheet. Matthew Chambers and Steven Beningo provided assistance. BTS is a component of the U.S. Department of Transportation's Research and Innovative Technology Administration (RITA).

For Related BTS Data and Publications: www.bts.gov

For questions about this fact sheet or other BTS reports, call 1-800-853-1351, e-mail ritainfo@dot.gov, or visit www.bts.gov.

BTS International Programs and Publications:

- For a complete list of publications, please visit the BTS International Programs and Publications web-site at http://www.bts.gov/programs/international

Maritime-Related BTS Data Products—

- For the latest Maritime-related BTS data products, please visit the website at http://www.bts.gov/programs/maritime_program

Recommended BTS Publications For Further Reading—

- U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *America's Freight Transportation Gateways 2009*, available at http://www.bts.gov/publications/americas_freight_transportation_gateways/2009
- U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *America's Container Ports: Linking Markets at Home and Abroad 2011*, available at http://www.bts.gov/publications/americas_container_ports/2011