



FREIGHT POLICY TRANSPORTATION INSITUTE



Issues Affecting Barge
Transportation in the
Pacific Northwest

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FPTI Research Report Number 7

By

Ken Casavant
Director, Freight Policy Transportation Institute

Freight Policy Transportation Institute
Washington State University
School of Economic Sciences
301C Hulbert Hall
Pullman, WA 99164-6210

FPTI Research Reports: Background and Purpose

This is the seventh of a series of reports prepared by the Freight Policy Transportation Institute (FPTI). The reports prepared as part of this Institute provide information to help advance knowledge and analytics in the area of transportation policy.

FPTI is funded by the United States Department of Transportation (USDOT). Dr. Ken Casavant of Washington State University is Director of the Institute. A Technical Advisory Committee (TAC) comprised of Federal, State and local representatives has been assembled in order to identify relevant and pressing issues for analysis, apply rigorous theoretical and analytical techniques and evaluate results and reports. The TAC includes Jerry Lenzi (WSDOT) as Chair, Ed Strocko (USDOT), Randolph Resor (WSDOT), Bruce Blanton (USDA), Timothy Lynch (American Trucking Association), Rand Rogers (MARAD), John Gray (AAR) and Daniel Mathis (FHWA – Washington State). The following are key goals and objectives for the Freight Policy Transportation Institute:

- Improve understanding of the importance of efficient and effective freight transportation to both the regional and national economy
- Address the need for improved intermodal freight transportation, as well as policies and actions that can be implemented to lower operating costs, increase safety and lower environmental impacts of freight transportation nationwide
- Improve freight transportation performance to specific industries and sectors of the economy

For additional information about the Freight Policy Transportation Institute or this report, please contact Ken Casavant at the following address:

Dr. Ken Casavant, Director
Freight Policy Transportation Institute
School of Economic Sciences
Washington State University
301C Hulbert Hall
Pullman, WA 99164-6210
(509) 335 1608

Or go to the following Web Address:
www.fpti.wsu.edu

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FPTI PREVIOUS REPORTS NOW AVAILABLE

1. Simmons, Sara and Ken Casavant. FPTI Research Report #1. "Historical Waterborne Commerce on the Columbia-Snake River System: Commodity Movements Up and Down River, 1991-2010." November 2010.
2. Simmons, Sara and Ken Casavant. FPTI Research Report #2. "Industry Preparations for the Columbia-Snake River Extended Lock Outage, July – December 2010." February 2011.
3. Khachatryan, Hayk, Jeff Poireman, and Ken Casavant. FPTI Research Report #3. "Determinants of Consumer Choice for Biofuels." March 2011.
4. Khachatryan, Hayk, Ken Casavant, Eric Jessup, Jie Chen, Shulin Chen, and Craig Frear. FPTI Research Report #4. "Biomass Inventory Technology and Economics Assessment." March 2011.
5. Khachatryan, Hayk and Ken Casavant. FPTI Research Report #5. "Spatial and Temporal Differences in Price-Elasticity of Demand for Biofuels." March 2011.
6. Casavant, Ken. FPTI Research Report #6. "The Critical Status of Agricultural Transportation in the Pacific Northwest." March 2011.

By Dr. Ken Casavant

Director of the Freight Policy Transportation Institute, School of Economic Sciences, Washington State University

The crucial waterways and barge transportation in the U.S. was detailed in the U.S. Department of Agriculture and the U.S. Department of Transportation's recently completed comprehensive report on agricultural transportation in the United States, done by Washington State University's Transportation Research Group (TRG) in the School of Economic Sciences as a partner in that national study. The link for the full study is www.ams.usda.gov/RuralTransportationStudy.

This series of articles in Wheat Life abstracts from that report and details some findings of that study, with emphasis on the issues and concerns of Washington and the Pacific Northwest producers pertaining to the need for efficient and competitive transportation. In this article, specific attention is paid to the inland water (barge) navigation mode in the U.S. and the Pacific Northwest.

The Background

The original purpose of the federal involvement in inland navigation was to assist in the development of the frontier. Today, the federal government's role stems from an interest in helping to facilitate commercial navigation by providing safe, reliable, highly cost-effective and environmentally sustainable waterborne transportation systems. The federal agencies are many, led by the U.S. Army

Corps of Engineers. Others include the U.S. Department of Transportation (DOT), the Department of Homeland Security (DHS) and the Department of Commerce (DOC). The DHS, through the U.S. Coast Guard, has responsibility for vessel and navigation safety and provides navigation aids and search and rescue services. DOT's Maritime Administration supports the development of U.S. ports, intermodal systems and domestic shipping. DOT's St. Lawrence Seaway Development Corporation supports the operation of that waterway in partnership with Canadian authorities. DOC's National Oceanic and Atmospheric Administration provides surveys, tidal information and coastal charts.

Traffic Levels

The national study reports that in 2007, 622 million tons of goods were moved on the inland waterways, which included all movements within the boundaries of the contiguous 48 states and Alaska. The primary commodity moved on the waterways is coal, accounting for 29 percent of all tonnages. Petroleum is the next largest commodity group with 27 percent; crude materials (forest products, sand, gravel, ores, scrap and salt) are next largest with 18 percent; and food and farm products are fourth, with 12 percent.

The Importance of the Inland Waterways to Agriculture

The Army Corps of Engineers operates and maintains about 12,000 miles of rivers, canals and other inland ►

Tidewater Barge, founded in 1932, has evolved from a barge line primarily handling wheat into a multi-modal transportation company serving the diverse transportation needs of the Pacific Northwest. Here a barge is traveling down the Columbia River.

TIDEWATER PHOTO



As locks age, however, repairs and maintenance becomes more extensive and expensive. Funding for new construction projects is nearly depleted...



John Day Lock and Dam looking downstream on the Columbia River.

BILL JOHNSON/U.S. ARMY CORPS OF ENGINEERS PHOTO

and intracoastal waterways (inland waterways) in the United States. The Mississippi River and the Illinois Waterway are the primary waterways for moving agricultural products by barge. They are especially important for transporting bulk grains and oilseeds from the Midwest to export ports in the New Orleans region. Other important rivers include the Columbia River in the Pacific Northwest, which also moves bulk grains, oilseeds and fertilizer/chemicals, and coastal waterways that supply poultry and hog operations in the mid-Atlantic region. Across the inland waterways, there are 191 active lock sites with 237 lock chambers, eight of which are on the Columbia-Snake River system.

Some locks are equipped with more than one chamber, adding more capacity to that site. In 2006-2008 the Ohio River carried 18 percent of southbound grain barge movements through the locking portion of the river system, the Upper Mississippi River 76 percent and the Arkansas River the remaining 6 percent. Barges have a 9 percent share of agricultural tonnages and a 12 percent share of agricultural ton-miles—most of which is accounted for by movements of grain, animal feed and fertilizers on the Mississippi River and its tributaries.

Today's Barge Industry

Today's barge industry is driven by the fundamental forces of supply and demand, influenced by a variety of factors, including local weather patterns; navigation circumstances; domestic and international consumption of agricultural and industrial products; crop production; trade policies, and the price of steel. The demand for dry-cargo

freight on the inland waterways is driven by the production volumes of dry bulk commodities that require competitive barge transportation. Historically, the major commodity groups for dry-cargo barge freight have been coal for domestic utility companies, industrial and coke producers and export markets; construction commodities, such as cement, limestone, sand and gravel; and grain and oilseeds, such as corn and soybeans, for export markets. Other commodities include products used in the manufacturing of steel, finished and partially finished steel products, ores, salt, gypsum, fertilizer and forest products.

The demand for liquid freight is driven by the demand for bulk chemicals used in domestic production, including styrene, methanol, ethylene glycol, caustic soda and other products. It is also affected by the demand for refined petroleum products and agricultural-related products such as ethanol, vegetable oil, bio-diesel and molasses.

Inland Waterways Funding

According to the Inland Waterways Users Board (IWUB), there is a growing gap between Congressional appropriations for capital water infrastructure projects and the needed funding levels for these projects. Although there has been an increase in spending over the past few years, there has not been a corresponding growth in the completion of high-priority projects. Cost overruns and delayed construction, they say, have disrupted the capability of the Corps to improve the nation's water infrastructure. The projects are almost always multi-year projects, but Congressional appropriations are given in one-year increments. When annual appropriations for a given project are

less than the Corps estimate of the maximum amount that it can efficiently spend in a fiscal year, the completion date is considered extended.

During the late 1990's, Inland Waterways Trust Fund (IWTF) tax revenues were greater than expenditures, creating a surplus in the Trust Fund that peaked at \$413 million in FY 2002. The balance in the trust fund has been declining since FY 2002. This occurred primarily because expenditures increased, however, revenues also decreased during this period. By the end of 2009, the balance in the IWTF was \$14.3 million. At this level, the IWTF can only fund twice the amount of annual receipts because, under current law, the trust fund pays 50 percent of capital investments. In short, the decline in the trust fund since 2002 reflects a longer term trend, a structural imbalance between receipts and expenditures. The users of these waterways now pay a total of roughly \$85 million per year. By comparison, the amount financed from the trust fund, reflecting their share of the capital cost under current law, was \$205 million in FY 2007 and \$205 million in FY 2008.

Although aging, the locks and dams on the river system are generally reliable. As locks age, however, repairs and maintenance become more extensive and expensive. Funding for new construction projects is nearly depleted, with the trust fund down to \$14.3 million at the end of 2009. Roughly half of the funding for capital investments in the inland waterways comes from the commercial users of the system through a fuel tax; the other half comes from Congressional appropriations from the General Fund of the Treasury. There is a growing gap between the fuel tax receipts and the funding needed to meet the authorized non-Federal cost share for ongoing capital projects. There is currently no clear path forward on the funding shortfall, and this is a significant concern to farmers that depend on the inland waterways for transportation.

The Columbia-Snake River System

The Columbia-Snake River System in the Pacific Northwest is soon to be undergoing a massive and sustained lock outage, temporarily eliminating barge transportation on much of the upper Columbia and all of the Snake river. The impact of this loss of a major mode of transportation may be substantial, and the impact on demands of other modes of transportation dramatic.

This significant investment in infrastructure rehabilitation and improvements, an example of the needed funding in the future, will cause the navigation locks, beginning December 2010, to be closed at The Dalles, John Day and Lower Monumental dams for 14-16 weeks. The goal is to make necessary major maintenance repairs for continued operation in the future. Such extended lock closures are

not normal, but this river system, as with many facilities throughout the nation, requires investments to maintain the integrity of the system and to continue to generate the acknowledged long-term benefits of the navigation system.

The Corps of Engineers predicts substantial growth over the next fifteen years. The economic value of this transportation link is apparent from the commerce that flows up and down the system. This river system is the number 1 U.S. wheat export gateway, number 1 U.S. barley export gateway, number 1 West Coast paper and forest products gateway, number 1 in West Coast mineral bulk exports and number 1 in West Coast auto imports. This inland system supports 10 million tons of cargo and is connected to the deep draft channel and ocean shipping which supports over 40 million tons of cargo.

A study is currently underway by the Freight Policy Transportation Institute (FPTI) to monitor and analyze the impacts of this near term extended lock closure, to be reported in subsequent articles in this series. Interim Report number 1, detailing the history and volume on the river system, is now available from the FPTI website at www.fpti.wsu.edu/. ■

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