What Happened While it Was Down?
The Columbia-Snake River Extended Lock Outage
Sara Simmons, Eric Jessup and Ken Casavant
WHAT HAPPENED WHILE IT WAS DOWN?
THE COLUMBIA-SNAKE RIVER EXTENDED LOCK OUTAGE
Transportation Disruption (Investment) Study

- **Purpose**
  - Evaluate the economic and environmental impacts
  - Determine
    - Historical use of the river system
    - Preparations of industry and government entities
    - Impacts of the outage
    - Return of traffic to the river system
  - Produce a guide for other planned disruptions
Industry Impacts of the Lock Outage

- **Phase III**
  - **Objectives**
    - To learn how the actors were impacted
    - To describe the major commodity movements by rail and truck during the lock outage
  - **Data Sources**
    - Shippers, government divisions, industry personnel and ports
    - U.S. Army Corps of Engineers’ Waterborne Commerce Statistics Center
Rail and Truck Movements, December 2010 - March 2011 (Lock Outage)

- **Data Sources**
  - Industry representatives

- **Most notable finding:** most products were transported by truck or a combination of truck and rail
  - Most industries planned to only use rail
    - Inexpensive and can transport large volumes
  - Due to the convenience of truck
  - Industries chose to send their goods to alternative markets
  - Short distances and small loads
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Mode</th>
<th>Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>Truck and Rail</td>
<td>184,192</td>
</tr>
<tr>
<td>Distillate Fuels</td>
<td>Truck and Rail</td>
<td>276,287</td>
</tr>
<tr>
<td>Fertilizers</td>
<td>Rail</td>
<td>1,500</td>
</tr>
<tr>
<td>Forest Products</td>
<td>Truck and Rail</td>
<td>58,283</td>
</tr>
<tr>
<td>Sand, Gravel and Stone</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>Iron Ore and Steel Waste</td>
<td>Rail</td>
<td>9,000</td>
</tr>
<tr>
<td>Smelted Products</td>
<td>---</td>
<td>-</td>
</tr>
<tr>
<td>Wheat</td>
<td>Truck and Rail</td>
<td>45,648</td>
</tr>
<tr>
<td>Corn, Rye, Barley, Rice and Oats</td>
<td>Truck</td>
<td>212</td>
</tr>
<tr>
<td>Agricultural Products</td>
<td>Truck and Rail</td>
<td>31,194</td>
</tr>
<tr>
<td>Waste Materials</td>
<td>Truck</td>
<td>68,250</td>
</tr>
</tbody>
</table>
Barge Movements, December 2010 – March 2011 (Lock Outage)

- **A portion of the river worked**: from the pool west of The Dalles to Portland
  - Bonneville Lock and Dam

- **Downriver**:
  - A total of 377,000 tons were shipped downriver
    - 79% below average
  - 4 major commodities
    - Wheat; forest products; sand, gravel and stone; and smelted products

- **Manufactured equipment and machinery traveled upriver**
  - Gate leaves constructed for The Dalles Lock and Dam
Pacific Northwest Wheat Case Study

- **Background**
  - Wheat is the largest volume commodity that moves on the Columbia-Snake River
    - 75 percent of all downriver movements
    - The Pacific Northwest has a 3 pronged transportation system

- **Purpose**
  - To capture the options and decisions of wheat elevator managers
  - To provide a baseline scenario to compare changes brought on by the lock outage
Bushels of Wheat Shipped by Survey Respondents, Dec 2010 – Mar 2011

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Bushels Shipped</th>
<th>Actual Percentage of Bushels Shipped</th>
<th>Typical Percentage of Bushels Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Oregon</td>
<td>9,680,000</td>
<td>27%</td>
<td>12%</td>
</tr>
<tr>
<td>Northern Idaho</td>
<td>2,430,000</td>
<td>7%</td>
<td>16%</td>
</tr>
<tr>
<td>Southern Idaho</td>
<td>1,620,000</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>No. Washington</td>
<td>20,320,000</td>
<td>57%</td>
<td>34%</td>
</tr>
<tr>
<td>So. Washington</td>
<td>1,430,000</td>
<td>4%</td>
<td>35%</td>
</tr>
<tr>
<td>Pacific Northwest</td>
<td>35,480,000</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Percentage of Wheat Shipped via Various Modes, Dec 2010 – Mar 2011

- Eastern Oregon
- Northern Idaho
- Southern Idaho
- Northern Washington
- Southern Washington

Modes:
- Truck
- Barge
- Rail
## Percentage of Wheat Shipped Via Various Transportation Modes

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Truck</th>
<th>Average Barge</th>
<th>Average Rail</th>
<th>Outage Truck</th>
<th>Outage Barge</th>
<th>Outage Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Oregon</td>
<td>1.0%</td>
<td>91.8%</td>
<td>7.2%</td>
<td>40.4%</td>
<td>20.0%</td>
<td>39.6%</td>
</tr>
<tr>
<td>Northern Idaho</td>
<td>0.3%</td>
<td>78.9%</td>
<td>20.8%</td>
<td>2.0%</td>
<td>0.0%</td>
<td>98.0%</td>
</tr>
<tr>
<td>Southern Idaho</td>
<td>33.3%</td>
<td>21.7%</td>
<td>45.0%</td>
<td>6.0%</td>
<td>0.0%</td>
<td>94.0%</td>
</tr>
<tr>
<td>No. Washington</td>
<td>14.0%</td>
<td>14.6%</td>
<td>71.4%</td>
<td>14.1%</td>
<td>0.0%</td>
<td>85.9%</td>
</tr>
<tr>
<td>So. Washington</td>
<td>0.9%</td>
<td>97.5%</td>
<td>1.6%</td>
<td>75.3%</td>
<td>0.0%</td>
<td>24.8%</td>
</tr>
</tbody>
</table>

December - March
# Shipping Rates for Wheat by Survey Respondents, Dec 2010 – Mar 2011

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Rate in Cents per Bushel (to Portland)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Truck</td>
</tr>
<tr>
<td>Eastern Oregon</td>
<td>$0.56</td>
</tr>
<tr>
<td>Northern Idaho</td>
<td>$1.50</td>
</tr>
<tr>
<td>Southern Idaho</td>
<td>$0.76</td>
</tr>
<tr>
<td>No. Washington</td>
<td>$0.45</td>
</tr>
<tr>
<td>So. Washington</td>
<td>$1.34</td>
</tr>
<tr>
<td>Pacific Northwest</td>
<td>$0.92</td>
</tr>
</tbody>
</table>

Rates before the lock outage:

- **Truck** - $0.89 (3.4% ↑)
- **Rail** - $0.65 (1.5% ↑)
Wheat Industry Impacts

- **Wheat Industry**
  - Increased truck and rail shipments
    - Total shipments decreased by 1.6 million bushels
      - High prices and demand during Fall 2010
      - Waited for locks to open
    - Some firms expressed concern with rail service
  - 4 elevators halted all wheat shipments
    - Truck and rail were too expensive
    - Shipped in anticipation of lock outage
      - Barge shipments in summer and fall: 32% above average
  - 1 elevator in Oregon had barge access
  - Willamette Valley production
Shipping Impacts and Activities

**Barge Line Impacts**
- Laid off employees
- Reduced employees’ work hours
- Continued service below The Dalles
- Barging tugs were called to Portland

**Rail Line Impacts**
- Increased cargo loads (going east and west)
- Increased employees’ hours to handle large loads and increased railcar numbers
- Increased fuel and employees’ costs
Industrial Impacts and Activities

- Petroleum companies
  - Reserved about procedures: proprietary information
  - Shipped about 60% of product by tanker truck
    - More economical and convenient than rail
    - No pipeline use
    - “Smooth sailing”
    - No reported fuel shortages, price gouging or price hikes due to the lock outage
Weekly Gasoline Prices, December 2010 – March 2011

All prices in the Pacific Northwest rose in unison.

Rising gas prices were not an effect of the lock outage, but rather a result of unrest in the Middle East.
Industrial Impacts and Activities

- Forestry Industry
  - Truck and rail transportation (15% by rail)
  - Paper firms used forest products from Eastern Washington and from local sources
  - Barge lines were able to continue shipments
    - From Bingen, WA
  - Barge shipments during the summer and fall were 75% above average
    - Allowed a build up of inventories
The Rest of the Story

- Document the return of traffic to the river
- Calculate total costs to shippers and commodity industries
- Calculate energy and emission impacts of lock outage
Questions?

Check out the Freight Policy Transportation Institute’s website!
www.fpti.wsu.edu

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