

PNREC

Importance of Columbia-Snake River Navigation to U.S. Agriculture

School of Economic Sciences

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Downriver Volumes





Upriver Volumes









Study Objectives:

- ✔ Estimate the value added of Columbia-Snake River navigation
- ✓ Evaluate the impacts of value added under different levels of infrastructure investment
 - Model intermodal freight networks for commodities currently utilizing the river system
 - Shock the model to understand impacts under different levels of infrastructure investment



Scenarios:

✓ AOS 1: an improved scenario in which all planned, outstanding, and proposed maintenance projects are completed improving river transportation efficiency and <u>reducing</u> barge transportation costs by 6%.

✓ AOS 2: an unimproved scenario in which planned maintenance projects are deferred resulting in reduced river transportation efficiency and <u>increasing</u> barge transportation costs by 6%.

✔ AOS 3: a degraded scenario in which river maintenance is neglected resulting in a substantial decrease in river transportation efficiency and *increasing* barge transportation costs by 12%.











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Grain - Change in Unit Cost/Ton by County Under 6% Decrease in Barge Rates (AOS 1)





Grain - Change in Unit Cost/Ton by County Under 6% Increase in Barge Rates (AOS 2)





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	Baseline	AOS 1 (-6%)	AOS 2 (+6%)	AOS 3 (+12%)
Volume (tons)				
Road	6,258,690	0.2%	-0.4%	-0.4%
Barge	3,933,470	2.0%	-2.5%	-7.8%
Rail	398,690	-0.9%	11.5%	24.6%
Shuttle Rail	2,144,030	-3.6%	4.6%	14.2%
Expenditures (\$)				
Road	\$53,327,600	0.3%	-1.2%	-2.4%
Barge	\$52,126,800	-3.9%	3.3%	3.0%
Rail	\$3,193,280	-0.8%	10.8%	22.1%
Shuttle Rail	\$36,258,200	-3.5%	4.6%	14.0%
Total Expenditures	\$144,905,880	-2.2%	2.1%	4.2%





	Baseline	AOS 1 (-6%)	AOS 2 (+6%)	AOS 3 (+12%)
Volume (tons)				
Road	22,966,290	0.1%	-0.1%	-0.1%
Barge	7,060,409	1.3%	-3.6%	-6.9%
Rail	1,462,900	-0.3%	13.4%	17.0%
Shuttle Rail	2,144,030	-3.6%	4.6%	14.2%
Tanker	1,744,710	0.0%	0.0%	0.0%
Pipeline	14,065,800	0.0%	4.2%	4.3%
Expenditures (\$)				
Road	\$181,556,720	-0.1%	-0.3%	-0.3%
Barge	\$85,012,082	-4.5%	1.6%	2.9%
Rail	\$15,550,880	-0.3%	13.4%	15.7%
Shuttle Rail	\$36,258,200	-3.5%	4.6%	14.0%
Tanker	\$21,601,900	0.0%	0.0%	0.0%
Pipeline	\$96,929,800	0.1%	0.5%	0.2%
Total Expenditures	\$436,909,582	-1.2%	1.1%	2.2%



	Jobs	Value Added
AOS 1	265	\$56,466,223
AOS 2	-83	(\$21,106,961)
AOS 3	-143	(\$35,782,540)

	Grain	Petroleum	Fertilizer	Forest Products	Sand & Gravel
AOS 1	\$10,853,289	\$43,262,524	\$49,208	\$1,030,117	\$1,271,085
AOS 2	(\$11,331,264)	(\$7,401,674)	(\$49,636)	(\$1,040,495)	(\$1,283,891)
AOS 3	(\$22,493,916)	(\$8,555,874)	(\$98,677)	(\$2,074,409)	(\$2,559,663)





<u>Summary</u>

6% reduction in barge transportation costs is estimated to contribute to an additional \$56 million/year in value-added to the regional economy.

6% increase in barge transportation costs is estimated to result in a \$21 million/year reduction in value added for the regional economy.

12% increase in barge transportation costs is estimated to result in a \$36 million/year reduction to value-added for the regional economy.

These economic impacts are heterogeneous across states and industries.



<u>Questions ?</u>