

Commercial Navigation on the Lower Snake River

The Truth About Benefits vs. Costs

Men occasionally stumble over the truth, but most of them pick themselves up and hurry off as if nothing happened.

Winston Churchill

The 2002 Environmental Impact Statement (EIS) for the Lower Snake River Programmatic Sediment Management Plan (LSRPSMP) created by the U.S. Army Corps of Engineers (USACE) erroneously claimed that maintenance of the lower Snake River navigation channel provides an annual *savings* of \$25 million. The Northwest Division's Walla Walla District (NWW) of USACE continues to make this claim and waste millions of tax payer dollars.

During the public comments for the LSRPSMP, many requested NWW address the Cost-Benefit issues in a final EIS and LSRPSMP. In response to these comments, the NWW stated:

To ensure that continued maintenance is warranted, the Corps considered the current amount of traffic and the increased cost of transporting goods by alternative modes (rail or trucks) as opposed to barge.

A variety of products are transported by barge on the lower Snake River, including grain, containers, fertilizer, and machinery. Based on the 2002 Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement, (<http://www.nww.usace.army.mil/Library/2002LSRStudy.aspx>), the increased cost to transport grain by rail or truck is about \$8.45 per ton in current dollars [2014]. Total tonnage on the lower Snake River is currently estimated at about 3 million tons with the majority being grain. Therefore, annual transportation savings of approximately \$25M can be expected if the navigation system is maintained. In reality it is likely that benefits will increase in the future as traffic continues to recover from the recession. Annual costs to maintain the lower Snake River navigation channel are estimated to be in the \$1-5M range. Therefore, based on the estimated transportation savings, ongoing channel maintenance on the lower Snake River is warranted from the navigation perspective.ⁱ

To ascertain \$8.45 per ton requires a review of the EIS noted in the NWW comment. Appendix I, section 3.3 of the EIS lays out the methodology for the report's claim that barge transportation resulted in a savings of \$5.75 per ton in 1998 dollars compared to freight transportation by other means. Based on a 3% inflation rate, \$5.75 in 1998 would indeed become \$8.45 in 2014. Section 3.3 contains the following paragraph:

The direct economic costs that would result from breaching the four lower Snake River dams are measured and expressed as changes in the NED [national economic development] account. NED costs represent the opportunity costs of resource use, measured from a national rather than a regional perspective. In the case of dam breaching, the change in the cost of transporting products and commodities now shipped from ports on the lower Snake River is a NED cost, but the loss of revenue and profit by barge companies is not. Only the costs of resources actually used are included in the NED analysis. Although market prices (e.g., transportation rates) often

reflect the total opportunity cost of resources, this is not always the case, and surrogate costs must sometimes be used to adjust or replace market prices (or published or contract rates). In this study it was judged appropriate to use modal costs computed through analysis of the actual fixed and variable costs of each transportation mode—barge, rail, and truck, rather than rates.ⁱⁱ

Note the NWW elected to use costs generated by a computer model rather than actual rates for shipping goods to calculate changes in the NED account. Members of the barging industry were the first to identify a problem with this approach as documented in the appendix on page I3-85:

*During the course of this study it was determined that there is a large difference between barge costs as estimated by the Reebie Barge Model and rates that are actually charged by the barge industry. For example, the Reebie Model estimates a cost of \$3.07 per ton for shipping grain from Almota, Washington to Portland, Oregon, compared with the actual rate charged by the industry of about \$6.07 per ton. Industry representatives have stated on numerous occasions that the costs estimated by the Reebie Barge Model/ are incorrect (too low). In response to the comments by representatives of the barge industry, Corps analysts reviewed three other studies of barge costs. The finding was that all of the studies showed that rates are significantly higher than costs. In addition, input data for the Reebie Model/ were provided to an industry representative for review and comment. No comments on the input data were ever received from representatives of the industry. On the basis of currently available information, barge costs produced by the Reebie model are considered appropriate for use in the study. **The effect of using higher costs in the model, as has been suggested by representatives of the barge industry, would be to reduce the transportation system cost impacts of dam breaching and possibly indicate a large shift of grain from barge to rail.** (Emphasis added)*

This last quote requires careful review. Rates (the actual prices shippers charged customers) were much higher than the costs proposed by the Reebie Model. High levels of profit in the rates the barging industry charged at the time for shipping grain on the lower Snake River contributed to the higher rates, which the barging industry considered "costs." However, if NWW's analysis used these higher costs in their formulation, the claimed navigation benefit of keeping the dams in place would be reduced—in fact, the benefit would be reduced to zero.

In an effort to confirm the difference in cost versus rates, NWW hired another consulting firm, TransLog Associates to obtain truck / barge and truck / rail rates which indeed verified significant differences between barging costs versus rates from all locations. It also found that in 11 of 18 locations the rail rates were below the rail costs calculated from the cost model. The NWW assessment of this information is noted on page I3-82:

*A total of 18 origins were compared—nine in Washington, eight in Idaho, and one in Oregon. The comparison showed that truck / barge rates are consistently higher than costs and range from about one percent above costs to over 50 percent above costs. In the case of truck / rail, the comparison showed that rates were below costs for 11 of the 18 origins with a range from about 3 percent below costs to 30 percent below costs. The remaining seven origins had truck / rail rates that were higher than costs with a range of from nearly 33 percent above costs to a low of about one percent above costs. **The wide disparity between rates and costs suggests that in many cases rates are not set in a competitive environment, which is the condition required for rates to be used in NED analyses.** (Emphasis added)*

Of importance here is not only the fact that barging rates were much higher than the costs, but also the comparison of shipping rates for truck / barge with shipping rates for truck /rail. Table 3.3-1 (see Appendix) shows relatively small differences between actual shipping rates across modes from the same location, indicating that a competitive market *was* in place. This competitive market existed in spite of the very high profit margins reflected in the truck / barge rates.

Further, the Corps' planning ER 1105-2-100 Appendix D relating to the calculation of benefits for Navigation projects states:

*It is currently more difficult to accurately compute the long-run marginal costs of particular rail movements on the basis of cost estimation studies than to determine the rates at which railroad traffic actually moves. In competitive markets, rates (prices) correspond to marginal cost, and, given market stability, prices will settle at long-run marginal costs. Moreover, the rates actually charged determine the distribution of traffic among modes. **For these reasons, rates will be used to measure shift of mode benefits.** (Emphasis added)*

By disregarding this guidance, the District made an error in the LSRFR that provided a faulty and overstated benefit for truck / barge navigation versus truck / rail. The decision by the NWW to use costs generated by the Reebie Model rather than rates raised the NED costs of breaching the dams and thus supported keeping the dams in place. NWW also predicted that use of the higher costs in their formulation would "possibly indicate a large shift of grain from barge to rail", a prediction borne by the decline of freight traffic on the lower Snake River by 71% between 2014-2017.ⁱⁱⁱ

The LSRFR does include a means of more accurately approximating the difference between truck / barge and truck / rail at the time of the LSR feasibility study upon which the NWW has based its \$8.25/ton differential. Rather than using the Reebie Cost Model the Corps erroneously adopted, a comparison can be made using the average shipping rate for each state identified by the Translog Associates' study as summarized in Table 3.3-1 and weighting this rate by the percentage of grain each State shipped contained in Table 3.3-25 (see Appendix).

The Translog study provided data for Washington, Idaho, and Oregon, which in 1998 accounted for 92% of the grain shipped on the lower Snake River. Washington shipped 66.6% of the barged grain, Idaho 25.5%, and Oregon 0.8%. For Washington, the average truck / barge cost was \$12.84 per ton, with truck / rail at \$13.44. Idaho had average truck / barge cost of \$20.01, with truck / rail at \$18.77, while the data for Oregon was \$17.89 for truck / barge and \$16.48 for truck / rail. When the State average rates are weighted by each State's freight volume, truck / barge cost is \$13.80 per ton and truck / rail is \$13.87, a difference of just 7 cents a ton.

Thus, the NWW today is using the results of a faulty analysis in the LSRFR to "ensure that continued maintenance [of the lower Snake River navigation channel] is warranted." The claim of a \$25 million benefit for maintaining this channel is a false claim. The 2002 EIS which the NWW relies on to make this claim is flawed, and the actual NED benefit can best be estimated at zero based on the 2002 LSRFR. Further, the Corps' estimated \$1-\$5 million annual cost in the sediment management plan for maintenance of this waterway fails to fully consider the cost of lock operations/maintenance, major repairs such as \$10 million lock gate replacements, and needed major lock rehabilitation expenditures on the near horizon, let alone the +\$16 million the NWW has now spent on the sediment management plan itself.

NWW has a vested interest in keeping the lower Snake River Project alive, and they are partnered with the special interests that benefit from maintenance of the waterway at public expense. An honest, unbiased Cost/Benefit analysis of commercial navigation on the lower Snake River leads to two major conclusions: further expenditure of taxpayer dollars on this waterway is not economically justifiable, and the money that could be saved by closing the lower Snake to commercial navigation would be much more wisely spent on maintaining more productive waterways such as the Columbia River.

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Appendix

Comparison of Truck/Barge and Truck/Rail Costs and Rates

Table 3.3-1.

State/County	Location	Truck/Barge				Truck/Rail			
		Truck/Barge \$/ton (rate)	Truck/Barge \$/ton (cost)	Difference Rate minus Cost	Way Point*	Truck/Barge \$/ton (rate)	Truck/Barge \$/ton (cost)	Difference Rate minus Cost	Way Point*
Washington									
Adams	FRD	7.74	12.23	4.49	Tri-Cities	16.34	13.24	(3.10)	Odessa 1
Asotin	FRD	14.60	16.54	1.94	McNary	20.50	18.95	(1.55)	Pendleton1
Columbia	FRD	7.67	10.86	3.19	McNary	13.83	13.02	(0.81)	Pendleton1
Franklin	FRD	5.14	8.14	3.00	Tri-Cities	12.04	9.72	(2.32)	Plymouth
Garfield	Dodge	9.58	12.68	3.10	McNary	15.30	14.17	(1.13)	Pendleton1
Lincoln	Odessa2	10.68	15.63	4.95	Tri-Cities	14.69	14.20	(0.49)	Odessa 1
Spokane	FRD	14.41	15.55	1.14	Tri-Cities	13.44	14.29	0.85	Spangle2
Walla Walla	FRD	5.94	8.82	2.88	McNary	12.70	9.01	(3.69)	Pendleton1
Whitman	FRD	10.47	15.10	4.63	Tri-Cities	19.20	14.37	(4.83)	Pendleton1
Idaho									
Bennewah	FRD	15.83	20.85	5.02	Tri-Cities	15.17	19.21	4.04	Spangle2
Boundary	FRD	15.71	24.71	9.00	Tri-Cities	23.83	16.69	(7.14)	Spangle2
Idaho	FRD	16.88	21.45	4.57	Tri-Cities	16.17	20.97	4.80	Grangeville
Canyon	FRD	17.65			Hogue Warner	15.24			Nampa1
Kootenai	FRD	15.83	19.34	3.51	Tri-Cities	17.33	14.60	(2.73)	Spangle2
Latah	FRD	15.29	18.88	3.59	Tri-Cities	19.15	19.39	0.24	Spangle2
Lewis	FRD	17.18	17.67	0.49	Tri-Cities	15.50	20.54	5.04	Craigmont
Nez Perce	FRD	15.68	17.14	1.46	Tri-Cities	16.71	19.99	3.28	Craigmont
Oregon									
Wallaowa	FRD	13.37	17.89	4.52	Kennewick	15.13	16.48	1.35	Pendleton1

*Way point refers to the point where commodities would be transferred from truck to barge or rail or from truck to rail.

Note: FRD = Farm to River Direct



Table 3.3.-25 Increase in Grain Shipments and Shipping Costs with Dam Breaching for 2007 Projected Volume, by State* (1998 dollars)

State/Unit Cost	Volume (bushels)	Transportation (\$)	Storage (\$)	Handling (\$)	Total (\$)	Share of Cost (%)	Share of Grain (%)
Idaho	32,289,941	4,954,984	894,385	410,294	6,259,633	28.6	25.5
Cost per bu (cts)	32,289,941	15.3	2.8	1.3	19.4		
Cost per ton (\$)	969,668	5.11	0.92	0.42	6.45		
Montana	6,537,310	1,376,031	0	0	1,376,031	6.3	5.2
Cost per bu (cts)	6,537,310	21.00	0.0	0.0	21.0		
Cost per ton (\$)	196,139	7.02	0.00	0.00	7.0		
N. Dakota	2,458,172	261,556	0	0	261,556	1.2	1.9
Cost per bu (cts)	2,458,172	10.60	0.0	0.0	10.6		
Cost per ton (\$)	73,753	3.55	0.00	0.00	3.55		
Oregon	980,218	61,328	0	0	61,328	0.3	0.8
Cost per bu (cts)	980,218	6.30	0.0	0.0	6.3		
Cost per ton (\$)	29,409	2.09	0.00	0.00	2.09		
Washington	84,355,029	11,586,875	1,580,001	737,028	13,903,904	63.6	66.6
Cost per bu (cts)	84,355,029	13.70	1.90	0.90	16.5		
Cost per ton (\$)	253,904	4.58	0.62	0.29	5.49		
Subtotals	126,620,670	18,240,774	2,474,386	1,147,322	21,862,452	100	100
Cost per bu (cts)	126,620,670	14	2.0	0.9	17.3		
Cost per ton (\$)	3,802,423	4.80	0.65	0.30	5.75		
Total NED Infrastructure Costs - Low					4,250,000		
Total NED Costs - Low Infrastructure Costs					26,118,482		
NED Infrastructure Cost - High					27,211,000		
Total NED Costs - High Infrastructure Costs					49,083,482		

*Cost shown do not include the "adjustment" cost of \$794,781 that was calculated by the model to prevent the cost of any movement with dam breaching from being less than it was estimated to be in the base condition.

Endnotes

ⁱ Lower Snake River Programmatic Sediment Management Plan, Final Environmental Impact Statement; Appendix G – Public Involvement. 2014. Page 69 (G-67), comment no. 8360

https://www.nww.usace.army.mil/Portals/28/docs/programsandprojects/psmp/Revised_Appendix_G_consolidated_FINAL_8-13-14_HandF.pdf

ⁱⁱ Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement. Appendix I: Economics. Page 152 (I3-81)

https://www.nww.usace.army.mil/portals/28/docs/environmental/lrstudy/Appendix_I.pdf

ⁱⁱⁱ Laughy, L. Jan. 4, 2018. *Lower Snake River commerce hits all-time low.*

<https://www.idahorivers.org/newsroom/2018/1/4/2017-lower-snake-river-freight-transportation-review>