

The Five Most Blatant Myths about Freight Transportation on the Lower Snake River

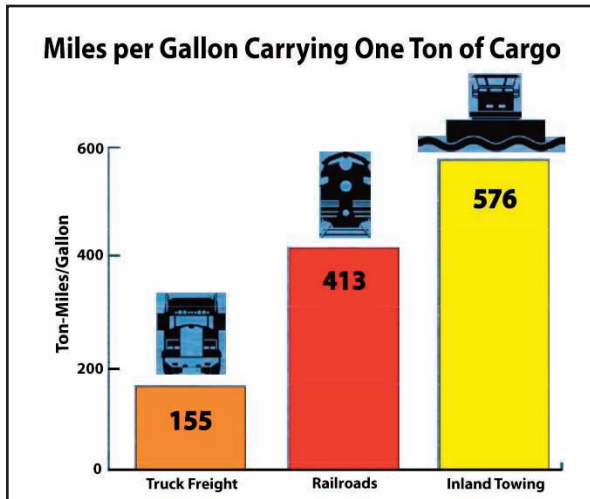
Those who benefit most from government subsidies for commercial navigation on the lower Snake River—the ports, industry associations and their members, and the US Army Corps of Engineers—have plied the public for years with untrue claims that barging is more economical, more fuel efficient, and less polluting than shipping freight by truck or rail. Barging supporters also make exaggerated claims that barging on the lower Snake River preserves highways and plays a critical role in the regional economy. The barging boosters make these claims while ignoring clear evidence to the contrary. In doing so, they are perpetuating myths—otherwise known as *cookin' the books* and *blowin' smoke*—and taxpayers are footing the bill.

The 5 myths:

- **Barge transport is the most fuel-efficient means of transporting cargo.**
- **Barging keeps trucks off our highways saving millions of dollars each year.**
- **Barge transport on the lower Snake is friendly to the environment.**
- **Barging is the cheapest way to move freight.**
- **Barging on the lower Snake is a vital part of the regional economy.**

The factual information on the following 5 pages has been gleaned from a range of research studies and professional literature. A final page summarizes conclusions drawn from this analysis.

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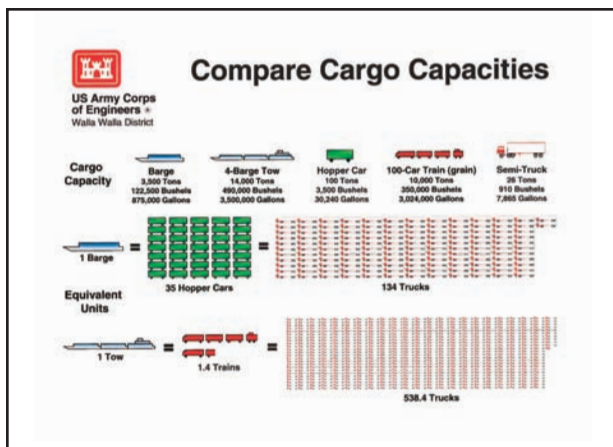


Northwest barging supporters consider this fuel-efficiency graph industry gospel. It appears on port and association websites, in grant applications, and is continually referenced for print media. Those who use this graph to represent energy savings of barge transport on the lower Snake River are either misinformed or intentionally misleading the public.

Myth 1: Barge transport is the most fuel-efficient means of transporting cargo.

- The ton-miles per gallon (tm/g) information in the above graph is extracted from a study by the Texas Transportation Institute (TTI) done for the National Waterways Foundation, whose officers and trustees are largely part of the barging industry. The graph uses old data from 2001-2005, even though TTI published updated results in a final report.¹ TTI's more complete and more current data set reveals a significant decrease in the perpetually claimed advantage of barge transport over rail.
- Several professional reviewers found the original TTI report and its followup flawed and the results misleading or of limited applicability.² For example, the TTI study failed to address circuitry; i.e., the more circuitous route rivers often run compared to roads and rail. Typical river circuitry is 1.3 times rail or truck. When a correction in the TTI data is made for circuitry, the tm/g become 474 for barge and 478 for rail. For a second example, the data in the TTI graph represent national averages. Net tm/g increase significantly as the number of barges in a tow increases. Tows on the Mississippi often range from 15-50 barges, while tows on the lower Snake only 1-4 barges.
- Most of the freight transport in the lower Snake River region is neither barge nor rail, but rather a combination: truck-barge or truck-rail. In a seminal article on freight transport fuel efficiency, Baumel notes that "net-ton-miles/gallon, when used alone, is frequently an *incomplete and misleading measure* for modal fuel efficiency comparisons. It is an accurate measure of comparative fuel efficiency only if the comparative mode shipments are from the same origin to the same destination, the same distance from the origin to the destination, and there are *no intermodal movements* in each shipment."³
- Grain is by far the most shipped commodity on the lower Snake, comprising 70% of all freight passing Lower Granite dam in 2011. Using regionally-derived energy coefficients rather than national averages, and BTUs as a measure of energy, Casavant and Ball reported that truck/rail is 24% more fuel efficient than truck/barge when analyzing the transport of wheat in eastern Washington. They concluded that the closure of commercial river navigation on the lower Snake River would save 12.1 billion BTUs of energy use each year.⁴

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1. Texas Transportation Institute, "A Modal Comparison of Domestic Freight Transportation Effects on the General Public: 2001-2009," February, 2012
 2. Institute for Agriculture & Trade Policy, "Myth: Barges Are the Most Fuel Efficient Mode of Transportation for Agriculture Commodities," 2002. See also Nicolle Island Coalition, "Big Price, Little Benefit," February, 2010
 3. Baumel, Phillip C., "Measuring Bulk Product Transportation Fuel Efficiency," Journal of Transportation Research Forum, Spring, 2011
 4. Ball, Trent and Casavant, Ken, "Impacts of a Snake River Drawdown on Energy and Emissions Based on Regional Energy Coefficients," University of Washington Dept. of Civil Engineering and Washington State University Department of Agricultural Economics, 2001



The chart at left is often used to imply barging is more efficient than other means of freight transport because of the volume of freight that can be hauled in a single load. However, the chart no longer accurately reflects the size of many of the rail cars in use today. More significantly, the data in this chart actually says nothing about freight transport cost or efficiency. Telling the public 4 quarts makes a gallon says nothing about the price of milk, nor for that matter, about the cost per ton of shipping grain by truck-barge rather than truck-rail.

Myth 2: Barges keep trucks off our highways—saving millions of dollars each year in energy consumption and road repairs.

- Northwest River Partners (NWRP) frequently tells the public “Barging food and other products downstream keeps 700,000 trucks off our highways and helps keep our skies clean.”¹ They and other barging supporters often accompany such claims with the above USACE chart. Here, however, are the facts: 700,000 trucks would transport 18.20 million tons of cargo. Nearly all downstream freight passes through the Bonneville lock. In 2010, total downstream tonnage through Bonneville was 6.34 million tons.² This cargo could be transported by 243,846 trucks, or 35% of the number claimed by NWRP—assuming all freight not transported by barge was trucked. However, if even half that freight were transported by rail, a very conservative estimate, the number of trucks “off our highways” would drop to 121,974, or just 17% of what NWRP continually claims.
- In a 2012 application for federal funds to extend its container dock, the Port of Lewiston claimed huge fuel savings as a project benefit based upon the Port’s supposed removal of 14,026 trucks per year from highways by 2020 and 24,496 trucks by 2035.³ Between 2000-2011, container shipments at the port declined steadily, from 17,590 twenty-foot equivalent units (TEUs) to only 3,653 TEUs. All container freight in 2011 could have been hauled by just 2,730 trucks. To meet the port’s claim of keeping 14,026 trucks off the highway in 2020, the Port would need a 500% increase in container traffic and the elimination of all container shipments by rail.
- According to the *Lewiston Morning Tribune*, in preparation for a planned 15-week river closure for lock repairs in 2010/2011 the Port of Lewiston stockpiled 300 containers for a container-rail operation. Indeed, a later article noted all cargo that left the Port of Lewiston during the river closure departed by rail.⁴
- Jessup, Ellis, and Casavant studied the impact on rail and trucking from a possible permanent closure of commercial navigation on the lower Snake River.⁵ They found the number of ton-miles of grain transported by rail from central and eastern Washington under this circumstance would increase by 93.5%, while truck ton-miles would increase by only 15.5%.
- Agricultural products comprise most of the freight on the lower Snake. In 2011, for example, 99% of outbound traffic from the Port of Lewiston was agricultural, mostly wheat, while grain made up 70% of the traffic passing through the Lower Granite lock. Washington State Department of Transportation’s Grain Train Program actually does remove trucks from roadways. Unlike the Port of Lewiston, it is also “a *financially self-supporting* freight transportation program....”⁶

1. *Northwest Hydropower and Columbia Basin River Benefits—Fast Facts 2013-14*, www.nwriverpartners.org

2. United States Army Corps of Engineers Waterborne Commerce Statistics Center, 2011

3. Port of Lewiston, *TIGER IV Grant Application, Attachment E: Benefit/Cost Analysis*, 2012

4. “Port of Lewiston Prepares for Railroad Traffic,” *Lewiston Morning Tribune*, November 10, 2010; See also “River Users Play Catch-up,” *Lewiston Morning Tribune*, April 3, 2011

5. Jessup, Eric, Ellis, John, and Casavant, Kenneth, “A GIS Commodity Flow Model for Transportation Policy Analysis: A Case Study of the Impact of Snake River Drawdown,” May 1997

6. FreightRail Program, Washington State Transportation Commission, Feb. 22, 2012, p. 24

Myth #3: Barge transport is friendly to the environment.

- Because fuels vary in composition across modes of transport, researchers often use BTUs (British Thermal Units) rather than ton-miles/gallon as the most accurate way to compare energy use. BTUs per ton-mile (BTU/tm) decreased across all transport modes from 1970 to 2008: truck by -11.55%, barge by -23.30%, and rail by -55.86%. Consequently rail has emerged as the most fuel-efficient mode at 305 BTU/tm, followed by barge at 418 BTU/tm and truck at 552 BTU/tm.¹
- Casavant and Simmons completed an extensive study of the impacts on energy use and fuel emissions of the 15-week closure of Snake River navigation in 2010/2011 due to lock repairs. They found energy use per ton transported during this period decreased by 4.77% due to the heavy use of rail “which consumes less energy per ton-mile than barge and truck.”²
- As noted in Myth #1, most freight transport in the region involves either truck-barge or truck-rail. When Ball and Casavant used *regional* energy coefficients rather than national averages in their study of energy and emissions impacts of a possible complete closure of commercial navigation on the lower Snake, they found truck-rail had a 24% advantage over truck-barge with respect to energy use. When transporting wheat from eastern Washington, shipping by barge used 368 BTU/ton-mile, while rail used 278. The increased energy savings associated with closing commercial navigation on the lower Snake River would result in a 2.08% *decrease* in fuel emissions.³
- The Port of Whitman estimates average annual savings to farmers of \$4,942,551 in wheat transportation costs from eastern Washington and parts of Idaho when the McCoy Unit Train Loader near Oakesdale, Washington, comes on line in 2013. Two farmer cooperatives with combined membership of 1390 growers are building the McCoy Loader for \$17 million and plan to ship 16.4 million bushels of their own wheat annually through this facility with an additional 4 million bushels expected from other cooperatives. The Washington Department of Transportation (WDOT) projects annual savings of \$3,530,000 in road damage from this same project. The Port and WDOT also note this shift from truck-barge to truck-rail will save 1,732 metric tons of CO₂ emissions each year.⁴

Comparing Freight Modes Per Ton-Mile (Grier, 2002)					
	Cost	Fuel Use	Hydrocarbons	CO2	NOx
	Cents	gallons	lbs.	lbs	lbs
Barge	.97	.002	0.09	.20	.53
Rail	2.53	.005	0.46	0.64	1.83
Truck	5.35	.017	0.63	1.90	10.17

Chart used by the Port of Lewiston to support its claim of project benefits and “environmental sustainability” in its 2012 TIGER IV application for federal funding for a container dock extension.

- Despite the availability of sound regional research data, lower Snake barging supporters continue making false claims regarding fuel efficiency and air pollution. For example, in its recent TIGER IV grant application the Port of Lewiston claimed air pollution benefits based on 30-year-old data indicating barge fuel efficiency was more than 2.5 times greater than rail and 8.5 times greater than truck.⁵ This data (see above chart), from a 1980 study done for the America Waterway Operators, Inc.,⁶ was extracted from a 2002 article by an Army Corps of Engineers staff member.⁷ Even the questionable TTI data the port used in their grant application to argue fuel savings (Myth #1) used a barge/truck fuel ratio of 3.7/1, not 8.5/1. The port compounds this emissions misinformation by falsely assuming any freight not hauled by barge would be hauled by truck and by failing to acknowledge barge transport is actually truck-barge transport.

1. *Transportation Energy Data Book*, U.S. Department of Energy, Edition 29
 2. Casavant, Ken, and Simmons, Sara “Economic and Environmental Impacts of the Columbia-Snake River Extended Lock Outage,” Freight Policy Transportation Institute, Washington State University March 2012.
 3. Ball, Trent and Casavant, Ken, *Impacts of a Snake River Drawdown on Energy and Emissions Based on Regional Energy Coefficients*, Transportation Northwest, Final Report TNW2001-06
 4. Port of Whitman, “P & L Shortline Rehabilitation Project, Tiger 5 Discretionary Grant,” 2013
 5. Port of Lewiston, “TIGER IV Discretionary Grant Application, Dock Extension Project,” 2012
 6. Eastman, S. E., “Fuel Efficiency in Freight Transportation,” *American Waterways Operators, Inc.* 1980
 7. Grier, David, “Measuring the Service Levels of Inland Waterways: Alternative Approaches for Budget Decision Making,” *TR News*, Transportation Research Board, July-August 2002

Once the thriving centerpiece of 19th- and early 20th-century logistics... the river barge business has become a ward of government largesse. Washington picks up more of the cost of riverborne shipping than any other type of logistics enterprise in the U. S. except, perhaps, resupplying the International Space Station.

Christopher Helman, *Forbes Magazine* April 15, 2013

Myth #4: Barging is the cheapest way to move freight.

Misinformation about barge fuel efficiency buttresses the most egregious of waterborne commerce myths—that barging is the cheapest way to move freight and saves millions in shipping costs. This statement is not true even when American taxpayers pay approximately 90% of the bill. River freight transportation epitomizes corporate welfare, and the lower Snake River is a giant subsidy slough.

- Nationwide, the Army Corps spends approximately \$800 million a year on operations and maintenance of river channels, locks and dams. Barge operators pay a 20 cents/gallon fuel tax into the Inland Waterways Trust Fund, which in 2012 brought in \$80 million. The Congressional Research Service reported that from 2000-2008 fuel taxes on the ColumbiaSnake paid for only 6% of the operation and maintenance costs of this waterway.¹ Both Bush and Obama administrations' attempts to raise the fuel tax on barge transport or add a waterway user fee met stiff resistance from the barging industry and congressional members it supports. Barging companies argue that any increase in their costs will render them uncompetitive with other transport modes.
- Over the past 6 years the Corps spent \$16 million preparing a Lower Granite Reservoir sediment management plan primarily to maintain a 14-foot deep navigation channel through the Snake/Clearwater confluence to the Port of Lewiston. In April 2013, a Corps spokesman told a news reporter that plan implementation would cost an additional \$39 million.² Thus the Corps proposes to spend at least \$55 million on perpetual dredging and other sediment-related projects primarily to keep open a port whose freight shipments over the past 12 years have declined by more than 50%. At 2011 shipping levels, taxpayers subsidize each barge leaving Lewiston's port by at least \$16,000 for dredging alone. Based on Corps' data, the annualized cost for dredging the confluence and up the Clearwater to the POL over the next 20 years will be \$3.1 million per year without inflation, or \$4 million per year with a 2% inflation factor.³ This cost does not include the \$16 million already spent on sediment management planning, related Corps' administrative and indirect costs, or additional costs of dealing with the predicted increases in sediment load due to the ongoing rapid expansion of forest fire activity in watersheds that feed the confluence.⁴
- In the last 8 years taxpayers spent at least \$267 million on Columbia-Snake River System maintenance, including on the lower Snake. This does not include the \$188 million spent dredging the lower Columbia to keep Portland area ports viable, without which commercial navigation on the lower Snake would likely cease. The Army Corps recently went to bid on the first phase of a project to shore up jetties at the mouth of the Columbia with a projected cost of \$257 million after spending \$28 million a decade ago on a temporary fix. According to a Corps spokesperson, the \$257 million is "the first step in a larger process." A second round of repairs is expected to run total jetty repair costs to \$500 million.⁵ According to the Government Accounting Office, the Corps has a well-deserved reputation for *underestimating* project costs.⁶
- As noted earlier, by far the majority of freight transported on the lower Snake is grain. Nearly 1400 growers, some of whom farm within 20 miles of the Port of Lewiston, apparently believe shipping by truck-rail is cheaper than shipping by truck-barge and have placed a \$17 million bet they are right with their investment in the McCoy Unit Train Loader. This private investment alone accentuates the fallacy of believing barging is the cheapest way to move freight.

1. Congressional Research Service, *Inland Waterways: Recent Proposals and Issues for Congress*, May 3, 2013

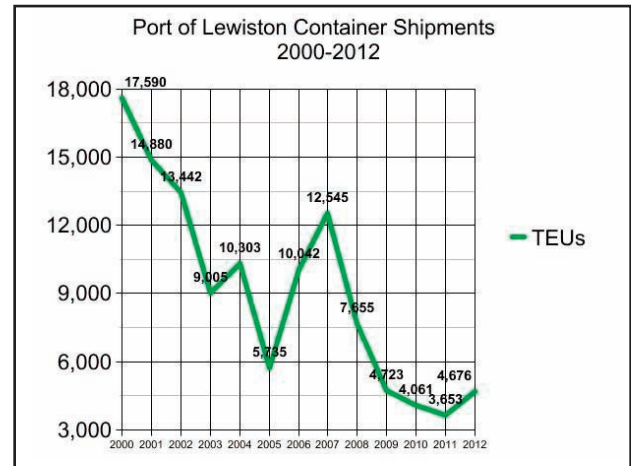
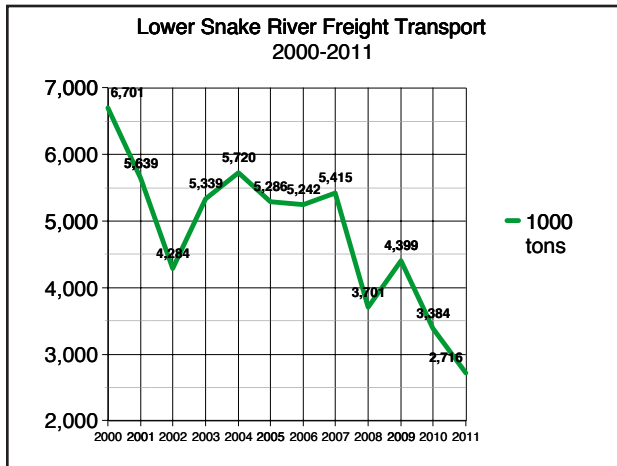
2. Kunz, Aaron, "U.S. Army Corp of Engineers Prepares Snake River Dredging Plans," National Public Radio, April 8, 2013

3. Laughy, Linwood, "The Lower Snake River Programmatic Sediment Management Plan: More Taxpayer Subsidies for the Port of Lewiston," January 2013; see also "Sediment and Subsidies: An Update," May, 2013

4. U.S. Army Corps of Engineers, *Lower Snake River Programmatic Sediment Management Plan*, 2012

5. Olson, Erik, "Corps set to begin first stages of Columbia River jetty revamp," *The Daily News Online*, April 29, 2013

6. U.S. General Accounting Office, *Corps of Engineers: Observations on Planning and Project Management Processes for the Civil Works Program*, March 16, 2006



Myth #5: Barging is a vital part of the regional economy.

Fifty years ago, boosters of the Lower Snake River Project promised economic prosperity to the residents of Lewiston, Idaho, and Clarkston, Washington with the arrival of slackwater navigation. Today local residents are still subsidizing port operations, freight transport by barge has declined dramatically since the turn of the century, and federal subsidies for river system maintenance and operations keep rising.

- As noted in the above-left graph, from 2000 through 2011 freight tonnage on the lower Snake River declined by 59%. At the Lower Granite lock, pulp and paper declined by 90%, wood products by 52%, and grains by 40%.¹ Much of this decline occurred prior to the 2008 recession.
- Over the past 12 years bulk and container freight transport from the Port of Lewiston declined by 60%. As noted in the above-right graph, between 2000 and 2012 total container shipments declined by 77%. Port of Lewiston shipping reports for 2007-2012 show a decline in paper shipments of 81%, containerized grain by 95%, and lumber by 100%. Between 2000-2011 bulk wheat shipments declined 45%.²
- Most containers shipped upstream on the lower Snake are empty. At the Port of Lewiston, for example, during the 8-year period (2004-2012) for which data is available from the U.S. Waterborne Commerce Data Center, 84% of containers received were empty. The removal of 1 aberrant year from the data set changes this percent to 94.5%. All containers arriving at the POL in 2011 and 2012 were empty.³
- After more than 40 years of operation the Port of Lewiston continues to require subsidies from local taxpayers. Lewiston's port district has collected \$4.5 million over the past ten years in local tax subsidies. As a government entity the port also currently receives over \$100,000 a year in state sales tax revenues. The port's budget also indicates the port pays no property taxes on its 246 acres of prime waterfront and commercial property.⁴
- The Lewiston Port District is comprised of all of Nez Perce County. The Idaho Department of Labor lists Nez Perce County's 12 largest employers in its June 2013 Work Force Trends report.⁵ Only one employer on the list ships goods by barge, and that manufacturer transports the vast majority of its product by truck and rail. The port employs 7 of the 18,810 people in Nez Perce County's current labor force.
- Unemployment in Nez Perce County ranged from only 2.8%-4.5% for 5 of the last 11 years, between 4.5%-5.5% two of those years, and remained below 7% during the great recession. The health of the economy in Nez Perce County appears unrelated to the 50%-60% decline in barge freight shipments from the Port of Lewiston over that same time period.

1. U.S. Army Corps of Engineers, Waterborne Commerce of the United States Data Center, 2011
 2. Port of Lewiston Shipping Reports, at www.portoflewiston.com
 3. Waterborne Commerce Data Center, U.S. Army Corps of Engineers, 2011
 4. Port of Lewiston, 2013 Budget at www.portoflewiston.com
 5. Idaho Department of Labor, "Nez Perce County Workforce Trends," June, 2013

The Five Most Blatant Myths about Freight Transport on the Lower Snake River Conclusions¹

- Lower Snake River barging boosters perpetually use false assumptions, old data, and questionable or non-applicable research studies in crafting their support of the *status quo*. The resulting misinformation misleads the public, quashes needed dialogue about important transportation issues, and leads to the misallocation of private and public resources.
- Freight transport on the lower Snake River has declined significantly over the past 13 years. The expansion and increased efficiency of rail in the region will likely continue to reduce the amount of freight hauled on this waterway.
- While freight tonnage has declined, costs for maintaining and operating commercial navigation on the lower Snake, as well as on the entire Columbia-Snake System, have steadily increased, which has greatly expanded the taxpayer subsidy for each ton shipped. These continuously rising costs come at a time when the U. S. Corps of Engineers faces huge financial demands across the nation for the maintenance of aging infrastructure, and when the federal government is making major across-the-board budget cuts.
- Barging on the lower Snake contributes only 5% of total tonnage shipped on the Columbia-Snake System and on a ton-mile basis, accounts for just 1/10th of 1% of U.S. commercial navigation. Barge transport on the lower Snake is not economically sustainable. As noted by the National Academy of Sciences in a study done for the Army Corps of Engineers, the Corps may need to abandon commercial navigation on some waterways in order to maintain those that handle more ton-miles of freight. The Corps faces large, perpetual costs for sediment management on the Columbia and at the river's mouth. Maintaining freight transport on the Columbia may necessitate abandoning commercial navigation on the lower Snake.
- Sediment management at the confluence of the Snake and Clearwater Rivers is now shining a light on cost-benefit ratios involved in lower Snake River commercial navigation. For example, cost savings to farmers for the shipment of agricultural products from the Port of Lewiston are insufficient even to pay for the annualized cost of channel dredging necessary to keep barge operations at that port possible.
- Barging supporters pay limited, if any, attention to river system changes already occurring because of climate change. The rapidly expanding number of square miles of forest land burned in the Snake, Salmon and Clearwater drainages during the last decade are already producing increased sediment loads, and this trend will continue. Resulting lower flows and higher water temperatures will negatively impact anadromous fish, likely requiring lower Snake River reservoirs be kept at minimum operating pool levels as well as mandating more spill. Maintenance costs will increase and river system reliability will suffer. The *status quo* on the lower Snake is no longer possible, and the refusal to give serious attention to alternatives is indefensible.
- Analyses of the maintenance and operational costs of continued freight transport on the lower Snake rarely include other significant costs to taxpayers and regional residents. A few examples: For much of the region, truck-barge transportation results in more damage to highways than truck-rail. Commercial and recreational fishing and related tourism are held far below their potential regional economic benefit. Electricity rate-payers spend over \$500 million per year trying to recover fish runs on the Columbia and Snake Rivers with limited if any success. Wildlife suffer the loss of thousands of acres of prime riparian habitat. Native Americans, such as the Nez Perce, have paid and continue to pay high social, cultural and economic costs related to the lower Snake River dams.

1. All references to ports in this analysis refer only to their freight transport operations. Ports regularly conduct numerous economic development activities, most of which do not involve commercial navigation.