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HONORABLE ROBERT S. LASNIK

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON

NATIONAL WILDLIFE FEDERATION, WASHINGTON WILDLIFE FEDERATION, IDAHO WILDLIFE FEDERATION, IDAHO RIVERS UNITED, PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS, and INSTITUTE FOR FISHERIES RESOURCES, Plaintiffs, v. NATIONAL MARINE FISHERIES SERVICE and UNITED STATES ARMY CORPS OF ENGINEERS, Defendants.	Civ. No. CV02-2259L DECLARATION OF ANTHONY JONES IN SUPPORT OF PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

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I, Anthony Jones, declare and state as follows:

1. I am a professional economics consultant. I hold degrees in economics from Idaho State University (B.A.) and University of Washington (M.A.). I am currently a resident of Boise, Idaho.

2. I have over 20 years experience managing programs and advising government leaders and corporate management in the areas of strategic planning, operations planning, marketing, market research, economics, statistics, and finance. Further information on my past employment is provided in the report I prepared for National Wildlife Federation and Idaho Rivers United on the Dredged Material Management Plan Final Environmental Impact Statement ("DMMP/EIS") (Sept. 9, 2002) (hereinafter "Jones Report"), attached as Exhibit 10 to the Declaration of Jan Hasselman. NWF and IRU submitted a copy of this report to the Corps prior to the issuance of the ROD.

3. In addition to my over two decades of economics and management experience, I have had over six years in-depth exposure to economic issues involved in management of the lower Snake River and Columbia River, particularly with regard to the operation of the Snake River dams, hydroelectric system, and navigation system. In 1998, I was retained by Idaho governor Phil Batt, and subsequently by Idaho governor Dirk Kempthorne, to provide an economic audit of the Drawdown Regional Economic Workgroup ("DREW"). The DREW workgroup's studies and activities provided the materials and information for what was to become the Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement ("FR/EIS"). My *curriculum vitae* is attached to this declaration as Exhibit A.

4. I make the following statements on the basis of my professional experience, to the best of my knowledge, and subsequent to extensive review of the draft and final DMMP/EISs,

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their appendices, documents referenced therein, and other documents pertaining to management and economics of Snake River dams. I make this statement to summarize in non-technical terms the limitations, gaps in analysis, failures to consider relevant factors, failures to explain its conclusions, and other shortcomings in the DMMP/EIS economic analysis that are described in more detail in the Jones Report.

OVERVIEW OF DMMP/EIS COST-BENEFIT ANALYSIS

5. The DMMP/EIS includes a "cost-benefit" analysis of the Corps' maintenance dredging, disposal, and levy construction proposal. In the Corps' analysis, the "costs" of the project comprise the costs of maintenance, dredging, and levee construction as well as the costs of operating the navigation locks. These are compared to the "benefits" that purportedly arise as a result of these expenditures – namely, the benefits that arise to producers of goods that pay less for shipping through a barge navigation system than they would through a truck or rail system. In theory, comparing the costs of a proposal to its benefits allows a reader to determine whether or not the proposal represents a wise or sound use of resources. Accordingly, a competent and useful cost-benefit analysis ("CBA") includes every factor that reasonably would influence the outcome of the decision. Omission (or inappropriate inclusion) of costs or benefits skews the analysis and can result in an inaccurate or incomplete portrayal of the cost-benefit ratio, and hence the relative wisdom of moving ahead with a project. Jones Report, 5-7.

6. Equally important is the choice of "baseline" for a CBA, which is the starting point of the analysis. In the case of the navigation system, both the costs and the benefits of navigation have been accruing for several decades. The benefits of navigation result from the ability of barges to move certain commodities more cheaply than other modes of transportation. These benefits are attributable to very large public expenditures, namely, the construction of the lower Snake River dams and navigation locks, which ran into the many hundreds of millions of

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dollars. The construction of the dams also resulted in other costs, for example the destruction of once vibrant commercial, recreational, and tribal fishing industries. These costs continue to accrue today. However, the DMMP analysis does not include any of these costs, past or present, rendering them "invisible." Jones Report, 6. The impact of this problem is described in greater detail below.

7. The integrity of any cost-benefit analysis is dependant upon the integrity of the data used to calculate each of the underlying components. Similarly, inclusion or exclusion of components of costs or benefits skews the analysis and results. Here, the Corps arrived at a benefit-to-cost ratio for this project of 16 to 1. In other words, according to the Corps, for each dollar of spending, sixteen dollars of benefits are produced as a result. As explained in the Jones Report, this conclusion is achieved only by a systematic and serial pattern of over-counting of benefits, and excluding of costs, to the point where the analysis is fundamentally misleading. In fact, by ignoring highly relevant data and considerations, the analysis violates several of the most basic principles of competent economic analysis and presentation. Jones Report, 2. The following paragraphs explain and summarize the findings in my report in non-technical language.

THE INVALID FREIGHT GROWTH FORECASTS

8. Much of the data utilized by the Corps in this CBA comes from another Corps of Engineers EIS, finalized in February 2002. This document, called the Lower Snake River Salmon Migration Feasibility Report and Environmental Impact Statement ("FR/EIS"), evaluates various options for managing the four lower Snake River dams and reservoirs, with a primary goal of evaluating their effectiveness for protecting salmon species that have become threatened with extinction by the operation of the dams. One of the options evaluated in the FR/EIS is the partial removal of all four lower Snake River dams and the restoration of a normative river flow

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regime. This alternative has been promoted by the State of Oregon, several Indian Nations, and hundreds of scientists, biologists, and conservation groups.

9. The FR/EIS relies upon and incorporates freight forecast data used in yet another document, a 1999 evaluation of a proposal to deepen the Columbia River between its mouth and the port of Portland, Oregon, to accommodate deeper ocean-going ships. The study was called the Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement (August 1999) (for purposes of simplicity, it will be referred to here as the "Channel Deepening Study" or CDS), Exhibit B. The CDS estimated that wheat exports from Portland-area ports would grow steadily. Id. at 3-3 ("The Columbia River ports should expect healthy growth in wheat exports.") This forecast data was then incorporated into the FR/EIS.

10. The DMMP/EIS, in turn, adopts this material from the FR/EIS. In the DMMP/EIS and FR/EIS, the CDS export freight data is used by the Corps to make forecasts about the quantities of materials that are likely to be shipped via the Snake River navigation system in the decades ahead. The CDS freight forecasts, incorporated into the DMMP/EIS via the FR/EIS, are used to predict a steady and significant increase in commodity shipping in the Snake River over time. These alleged increases form the basis for the Corps' assessment of benefits offered by the Snake River dredging program. The problem is that the anticipated increases in Snake River freight volumes claimed in the CDS, FR/EIS and DMMP/EIS are not supported by the available evidence. There are several reasons why this is so.

11. As a threshold matter, the use of data that is already years out of date raises serious questions about its reliability. The CDS made guesses about freight volumes during the mid- and late-1990s, and early years of the 2000s, based on data from the years before 1996. Today, there are many years of actual Snake River freight data in existence that could have been

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used to determine what the actual freight volumes were, rather than what they were forecast to be in the late 1990s. The Corps elected to ignore this data, however, even though it is data they maintain at the Waterborne Commerce Statistics Center in New Orleans, and in the Corps' Lock Performance Monitoring System. This is contrary to accepted accounting and analysis norms.

12. Moreover, the CDS forecasts are not accurate for use in forecasting freight volumes in the lower Snake River. Jones Report, at 8. The CDS does not attempt to estimate Snake River freight volumes specifically. Rather, it estimates total projected increases in ocean-bound wheat exports from Portland-area terminals. The Snake River basin is only one of several regions that ship wheat to the Portland-area terminals for export. For example, most of the Columbia basin (downstream of the Snake River) barges its wheat to Portland. Wheat from the Plains states, including Kansas and Nebraska, is shipped to the Portland area via rail. Wheat shipped through the lower Snake River only represents about a quarter to a fifth of this total volume. Exhibit C, FR/EIS, App. I, at 3-94.

13. Thus, in lieu of using the available data that is specific to the Snake River, the Corps estimates Snake River freight volumes by simply assuming that a steady percentage of total Columbia River exports is and will continue to be comprised of Snake River volumes. Exhibit D, U.S. Army Corps of Engineers, Walla Walla District, Lower Snake River Juvenile Fish Mitigation Feasibility Study, Technical Report – Navigation (April 1999) at 41 ("Between 1987 and 1996, the share of wheat and barley exports originating above Ice Harbor has varied between 20.2% and 26.6%. The average for the period is 23.38%. This average is used to project future wheat and barley movements on the Snake above Ice Harbor by applying that percentage to projected exports from the JFA Columbia River deepening study.") Thus, the substantial and steady rate of growth in Columbia port exports is imputed to mean that Snake

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River barge volumes will grow at that same rate. However, there is little actual support for such a forecast in the Corps' own data, which are ignored in this analysis.

14. When the 1995 forecast of growth in wheat exports was made, most of the then-recent export increases from Portland were the result of increases in exports to the Pacific Rim from the Plains states, not the Snake basin. Jones Report, 12. Even leaving aside the accuracy of the report as a general matter, the key point is that the forecast for increased wheat volumes for exports out of Portland-area ports was based on anticipated increases in wheat volumes from places besides the Snake River basin. To whatever extent wheat shipments from the Portland area were increasing at that time, it had nothing to do with increased wheat volumes out of the Snake. The chart below, taken from one of the Corps' own documents, shows that the Snake River's share of total Lower Columbia wheat and barley transport had dropped from 26% in 1988 to just over 20% in 1996. The Corps' own documents demonstrate that wheat traffic via barge on the Snake, in contrast to other areas, has been quite flat for about a decade. Id. at 13.

Table 4-5 Wheat & Barley Exports Off the Lower Columbia Compared With Shipments Off the Snake River Above Ice Harbor, 1987-1996.

Wheat & Barley

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Lower Columbia Exports	12085	14945	10458	11778	12233	12762	13428	14908	14603	13691
Snake River Shipments	2906	3981	2532	3109	3241	2612	2706	3135	3471	2821
Snake River Percentage	0.24	0.266	0.242	0.264	0.265	0.205	0.202	0.21	0.238	0.206

Exhibit D, U.S. Army Corps of Engineers, Walla Walla District, Lower Snake River Juvenile Fish Mitigation Feasibility Study, Technical Report - Navigation (April 1999) at 41; (Jones Report, 12).

15. Using the ratio of total wheat exports to Snake River volume described in the preceding paragraphs, the FR/EIS (and consequently the DMMP) estimates that freight volumes out of the Snake River will grow from just over 3 million tons per year to over 4 million tons per

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year by 2022. Exhibit C, FR/EIS, App. I at 3-95.

16. This estimate conflicts with considerable available data. Scrutiny of the Corps' actual barge data reveals that since the late 1980s, wheat tonnage out of the Snake has increased at a rate of approximately 0.1% per year. Support for this figure is presented in Exhibit E, in which I summarize total freight tonnage data that comes from Waterborne Commerce Statistics Center in New Orleans and the Corps' Lock Performance Monitoring System, as well as Corps annual reports. See Exhibit E.

17. Thus, even though wheat tonnage on the Lower Snake has been averaging just under 3 million tons per year for the last twenty years, at an exceedingly languid rate of growth, the DMMP/EIS benefit estimate is based on a prediction that by 2022, this tonnage will swell to over 4 million tons. There is no support for such a forecast. There is very little additional arable land left in the Palouse region, and no reason to think that increased yields of this magnitude from new crop varieties will be forthcoming. Jones Report, 12, 14. Again, the Corps is only able to make this forecast by erroneously imputing a percentage of the freight volume growth that occurred in the Plains states during the mid-1990s to the Snake River, where very little growth has occurred for quite some time.

18. Applying the 0.1% rate of increase that is supported by the actual data to the calculation of benefits in the DMMP/EIS shows a very modest 2% total increase, to 3.06 million tons, in Snake River freight volumes by 2022. This is, of course, a dramatic departure from the Corps' estimate of over 4 million tons.

19. The FR/EIS, using the 4 million ton volume estimate, determines that the navigation system provides $43.191 million in annual benefits in 2002 dollars, a figure that is simply imported into the DMMP/EIS. DMMP/EIS 1-12; FR/EIS, App. I, at 3-95. This $43

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million figure was generated by one of the Corps' consultants in developing the FR/EIS, using a proprietary computer program that no independent analyst can scrutinize. Thus, it is impossible to determine exactly how the $43 million figure was derived. However, it is reasonable to posit a roughly linear relationship between the amount by which the wheat freight volumes (which make up the vast majority of the transportation savings, DMMP/EIS at 1-12) are overstated and the amount by which the $43 million freight benefit figure is overstated. Such a linear relationship would mean that the $43 million freight benefit figure cited in the DMMP/EIS is overstated by approximately 27%. Thus, a more accurate benefit figure, based on growth in Snake River freight volume using the data ignored by the Corps, would be $31.3 million per year. See Exhibit F (summary of revised cost benefit calculation.)

20. Importantly, this criticism is not new, and is not unfamiliar to the Corps. Jones Report, 14-15. Because the FR/EIS suffers from precisely the same flaw (indeed, the DMMP/EIS simply borrowed this flawed analysis from the FR/EIS), many commenters brought this issue to the Corps' attention during the development of the FR/EIS. During this time, the Independent Economic Analysis Board, and others during the DREW process, criticized the Corps' use of CDS data to estimate Snake River volumes for the very reasons just mentioned. See FR/EIS App. I at 3-84. In its response to these comments, the Corps conceded that the criticism was valid, and that its methods resulted in a less reliable forecast than could be achieved by using volume data specifically from the Snake River. Id. (emphasis added). The Corps stated that:

> The forecasts developed for this study were obtained by simply prorating the forecast presented in the Columbia River Channel study based on the Snake River's historic share of shipments on the lower Columbia River. Critics of this methodology argue that a more accurate basis for the forecast would be an analysis of sources of commodities in the Snake River hinterland. The Corps

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agrees that analysis of the sources of commodities shipped on the Snake River should result in a more reliable long-term forecast.

21. Remarkably, after making the concession in the FR/EIS, the Corps refused to withdraw the analysis or the conclusions that rely on it. Now, the DMMP/EIS imports this admittedly unreliable data into the economic analysis for the dredging project.

22. Finally, as further evidence that the Corps' analysis is fundamentally misleading, it should be pointed out that the 1999 CDS study that forms the foundation for this (already fundamentally misleading) analysis has been largely repudiated by the Corps itself.

23. The Corps' Channel Deepening Study resulted in significant public controversy, primarily as a result of its environmental harms and questionable economic analysis. The Portland Oregonian conducted an in-depth review of the Corps' economic analysis for the proposal, and uncovered numerous and extensive flaws. The Oregonian report triggered even greater public scrutiny and controversy over the proposal, including a lawsuit by conservation groups. After the lawsuit was filed, the federal government withdrew the channel deepening proposal to re-evaluate its impacts, including its economic impacts.

24. In response to this public scrutiny, and while the government was re-evaluating the project, the Corps updated much of its economic analysis for the project. See Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (July 2002) ("CDS Supplement"), Exhibit G.[1] In this revised study, the Corps abandoned the 1995-era freight forecasts initially used, and developed new forecasts. Significantly, the new freight forecasts almost completely eliminate the old forecasts' predicted increases in commodity shipping. In the new document, the Corps states that "Wheat exports are projected to remain

[1] The full document is available at <https://www.nwp.usace.army.mil/issues/crcip/CRCIPDSIF/Columbia_main.pdf>.

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relatively flat over the period of analysis." Id. at 3-3; see also Exhibit H, CDS Supplement App. L at 3 ("The Columbia River wheat export projections have been reduced substantially relative to the original analysis . . . .")

25. Thus, not only does the Corps impute freight volume increases to the Snake River from a study that conflicts with available data, but the study itself has been repudiated and the freight volume increases originally forecast have evaporated. The Corps ignores this relevant data in making its projection of the benefits of dredging.

ATTRIBUTING ALL PROJECT BENEFITS TO DREDGING ALONE

26. Navigation of barges between the Columbia River and Lewiston, Idaho is not the result of maintenance dredging in the Snake River. Prior to the construction of the lower Snake River dams, the river was unnavigable by commercial barges of the sizes currently used. It was only after the four dams were built, with their navigation locks and reservoirs which deepened the channel, that commercial navigation on the scale currently employed became available. Jones Report, 16-18.

27. Accumulated costs for construction of the dams, with the inclusion of modifications and renovations, now total approximately $1.135 billion. U.S. Army Corps of Engineers, Walla Walla District, Reports of the Secretary of the Army on Civil Works Activities, Fiscal Years 1976-2001, Table 30-K Snake River, Exhibit I. For a summary and aggregation of past capital costs, see Exhibit J.

28. In return for these government expenditures, the public as well as private entities received various "benefits." One benefit of the existence and operation of the Snake River dams is the generation of hydroelectric power. Another benefit of the existence of the four Snake River dams is the ability to navigate commercial barges as far upstream as Lewiston. A comparison of the costs of the projects to these electricity and navigation benefits certainly

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would be of interest to many observers. This is not, however, what is presented in the DMMP/EIS. Rather, the DMMP/EIS counts all of the benefits of the navigation system but ignores most of the costs of providing those benefits, i.e., the total costs of construction of the dams and associated facilities. The result is a fundamentally misleading economic analysis, and hence questionable conclusion about the wisdom of the current dredging project. Ignoring these capital costs also conflicts with the Corps' methodology in the FR/EIS as well as accepted principles of accounting and economic analysis. Jones Report, 16.

29. In the DMMP/EIS, all of the benefits of the navigation system are counted in the benefits "column" of the cost-benefit analysis. (As noted, these are calculated as the cost to transport goods via truck and/or rail minus the costs to ship those goods via barges: thus, benefits of the navigation system are the cost savings for private entities relative to rail/truck transportation that result from the availability of the navigation system). However, even though these benefits arise only by virtue of the existence of the dams, not simply maintenance dredging, all of the capital costs of the dams are omitted from the "cost" column of the DMMP/EIS cost-benefit analysis. Instead, the only costs included by the Corps are the costs to operate the locks and the costs to dredge (and dump in-river) accumulated sediment.

30. The problem may be best illustrated with an analogy. Imagine an analysis to compare the relative costs and benefits of living in your own house. In counting the "benefits," the analysis looks at the cost savings that result from not having to stay in a hotel every night. In calculating the "costs," however, the analysis counts only the fee for a weekly cleaning service, the utilities and the occasional minor repair but omits the mortgage payment. The outcome would be a cost-benefit conclusion that seriously misstates the overall picture, as the major component of the costs of living in the house – i.e., the mortgage – are left out. As with the

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analogy, the Corps has counted all of the benefits that arise only by virtue of the existence of the dams but ignored almost all of the costs associated with them. Jones Report, 16.

31. The Corps might attempt to argue that in the absence of dredging, navigation would cease, and hence, the benefits of navigation should be attributed wholly to the costs of dredging alone. This is contrary to accepted practice, and omits important considerations and factors: perhaps another analogy will illustrate how. Imagine that you've purchased a car for $30,000. Over time, the tires wear out and new ones are required. Without new tires, the car will not be able to run at all, which would render it useless. Is the "benefit" of installing a new set of tires (which cost a few hundred dollars) really $30,000? And if so, couldn't the same be said of the oil change, the new radiator cap and the replacement brake pads? One could make a virtually endless series of compelling cost-benefit presentations because each minor and incremental repair would have benefits equal to the value of the entire car. Jones Report, 18. However, this is a misleading approach that is contrary to accepted methods of cost benefits analysis.

32. Rather, under accepted cost-benefit analysis norms and the Corps' own methodology elsewhere, expenditures required to maintain the benefits of a large initial expenditure over time are viewed as "operating costs" associated with the functioning of the entire system, rather than independent projects that can be compared to the benefits of the original expenditure. Dredging to maintain the navigation system is only required because there are dams that created the navigation system. The costs of dredging cannot be viewed as some independent project to be compared to the benefits of navigation, but rather as part of the ongoing maintenance and operating costs relative to the construction and operation of the dams. This is the only way to arrive at a true picture of the relative costs and benefits of the navigation

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system – it is simply impossible to take the dams out of the equation. It is also how the Corps views dredging from a budget perspective, where it is considered part of the "operations and maintenance" costs of the dams. Exhibit 7, Hasselman Decl. (Corps budget projections).

33. In Exhibit F to this declaration, I have laid out the skeleton of a cost-benefit analysis that addresses this problem. In it, I use data that is supplied by the Corps itself, primarily in the FR/EIS. While this data has been criticized as well for overstating benefits and understating costs of the dams, I have still used the Corps' own data to the extent possible.

34. The Corps has apportioned the capital costs of each dam to the various project uses, such as navigation and power generation. This apportionment system is used by the Federal Energy Regulatory Commission to determine the rate base used for pricing electricity produced by the Snake River projects. Rate payers only get charged for the "energy" portion of the dams. On average, about 8% of the capital costs of the dams are "tied" to their navigation benefits, the remainder are attributed to their power benefits. This is, again, the Corps' own methodology. Using this figure, we can compare the benefits of the navigation system to the portion of the costs of the dams that the Corps has apportioned to the navigation system. According to FR/EIS and technical work papers, the allocated capital cost of the navigation portion of the four Snake River dams was approximately $106 million. FR/EIS, App. I, 11-2; Exhibit K, FR/EIS-DREW Cost Allocation Working Document (December 1, 1998), at 6.

35. Thus, the benefits of navigation must be viewed in the context of the portion of the costs of the dams that are apportioned to navigation. Using the Corps' own apportionment figures, a constant dollar base, and annualizing these costs over a time period equal to the economic life of the dams (which the Corps assumes to be 100 years), shows that the navigation component of the Snake River dams' construction "cost" about $6.7 million per year, in 1976

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dollars.[2]

36. In the DMMP/EIS, the Corps did not include this cost in its cost-benefit analysis. Jones Report, 17. Rather, it counts all of the benefits attributable to navigation but it does not count the $6.7 million/year in annualized capital costs that the Corps has apportioned to navigation. This is fundamentally misleading and presents a highly skewed cost-benefit conclusion. Inclusion of this relevant figure would result in a very different cost-benefit calculation. See Exhibit F (cost calculations); Jones Report, 18.

OTHER COSTS OF THE DAMS

37. As described above, the Corps counted benefits that arise only by virtue of the existence of the dams but ignored the costs of the construction and operation of those dams, in contravention of its own methodology elsewhere as well as accepted standards. This section further expands upon the same theme. In addition to the costs of building and operating the dams, a vast array of additional costs were imposed as a result of the construction and operating of the dams. While these costs should be built into any credible comparison of the costs and benefits of the navigation system, it should come as no surprise that the DMMP/EIS entirely ignores these too.

38. Construction of the dams did and still does enormous damage to the once highly valuable Snake River salmon fisheries. These fisheries included large commercial catches, a sweeping host of benefits associated with recreational fisheries, and difficult to quantify but very important tribal subsistence and cultural fisheries. Now that all Snake River salmon and

[2] Benefit-Cost Analysis methodology requires analysts to determine a base period in which to accumulate all benefit and cost streams. The methodology is indifferent as to when that point is, so long as the benefits or costs are reported in "real" terms by appropriately adjusting for inflation between the base period and the time when the costs or benefits occur. It is common to choose a base period somewhere near the beginning of the project. In this case, I chose 1976.

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steelhead runs are either extinct or listed under the ESA, the benefits once arising from the presence of these fish have been very substantially reduced, and in some cases eliminated. Although many factors have contributed to the collapse of these species, most scientists and the Corps itself believe that the construction and operation of the lower Snake River dams have played a lead role.

39. In my work with the DREW process, I estimated that the economic value of fisheries that were wiped out by the lower Snake River dams to be in the neighborhood of $1.6 billion. Even though a part of this loss is a "cost" of the navigation system (which could be apportioned to navigation and power production purposes on the same formula as the capital costs described above), it is ignored in the DMMP/EIS.

40. Even the Corps' own data demonstrates this problem. In the FR/EIS, the Corps concludes that breaching the dams, which would substantially improve the state of these fisheries, would yield over $72 million in annualized benefits through increased commercial fishing and recreation. Another way of saying this is that the cost of not breaching the dams (i.e., costs imposed on commercial fishing and recreation interests by the dams simply by virtue of their continued existence) is $72 million per year. FR/EIS, App. I, at 10-3.

41. The Corps' estimates of these benefits have been criticized as too small by a number of parties for many reasons. Given the $1.6 billion figure that I outlined above for the value of the fisheries destroyed by the dams, it is clearly a substantial understatement. For purposes of this analysis, however, I will accept the Corps' own calculation from the FR/EIS. Thus, the point here is not that the FR/EIS estimate is flawed, which it likely is, but that it highlights relevant factors that were omitted altogether from the DMMP/EIS economic analysis.

42. If one is attempting to make a credible appraisal of the costs and benefits of the

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navigation system under accepted cost-benefit standards, one must include both the capital costs of the construction of the dams as well as the external costs that arose as a result of their construction, such as the harm to commercial fisheries and recreation. As we did above, we must apportion to the navigation system the same portion of these costs that the Corps has determined is appropriate. Thus, the cost to fishing and recreation associated with the existence of the navigation system can be added to the navigation component of the dams' capital costs. Using the Corps' own data and methodology, this total cost figure is approximately $3 million per year in 1976 dollars. Exhibit F.

43. Again, it is no difficult task to build these costs into a credible CBA. To continue with the discussion above regarding the capital costs of the dams, one can compare the benefits of the navigation system (all of which are included in the DMMP/EIS) to the "costs" (both capital and in terms of foregone fisheries/recreation) of the navigation system. Exhibit F. Of course, since these costs are ignored by the Corps in the DMMP/EIS, the Corps' economic analysis arrives at a very different conclusion.

SUDDEN HALT TO NAVIGATION

44. The DMMP/EIS asserts that over $43 million per year is saved by using barges in lieu of trucks and rail. DMMP/EIS at 1-12. This is the figure used by the Corps to quantify the benefits of navigation. (Of course, it is the producers and shippers of goods who receive this benefit, not the public or the U.S. Treasury, in contrast to its costs. But that is a separate issue.) As I showed above, this figure is based on inaccurate assumptions regarding increased freight volumes that even the Corps concedes will not materialize. Accordingly, I have estimated that this annual benefit, when adjusted to reflect an accurate freight forecast, should be approximately $31.3 million per year.

45. The $43 million figure comes from the FR/EIS, a primary purpose of which was

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to evaluate the pros and cons of breaching the dams to restore Snake River salmon runs. Should the dams be breached, of course, large scale commercial navigation on the scale currently employed would be eliminated immediately. Accordingly, it was reasonable to assert in the FR/EIS that these cost savings would be eliminated immediately upon dam breach.[3]

46. In the DMMP/EIS, the Corps uses this very specific FR/EIS figure – the economic impact of totally and immediately eliminating barge navigation – to calculate the benefits of dredging to maintain the navigation system. The figure is quite ill-suited to that task. Jones Report, 19-21.

47. As the Corps itself acknowledges elsewhere in the document, navigation would continue for some time in the absence of maintenance dredging. See ROD at A-22 ("It is possible for navigation to continue, albeit not at full capacity, without dredging.") Siltation occurs gradually over time, collecting in some places more quickly than others. The great bulk of the siltation occurs in the most upstream of the reservoirs, at Lower Granite; sediment accumulation in the other lower Snake pools occurs at a much lower rate. The Corps can respond to this gradual siltation in any number of ways. The easiest is to simply light load barges so that less draft is required. As sedimentation gradually continues, increasingly lighter barges would be required to navigate the channel. Moreover, the Corps can control the operating levels of the dams to raise pool levels, permitting barge navigation even as sediment accumulates.

48. Finally, it is likely that Lower Granite would be unusable for barges long before any of the other reservoirs, all of which have ports and barge loading/unloading facilities.

[3] This should not be taken as an endorsement of the particular figure chosen, or the FR/EIS generally. Rather, it simply intends to show that a figure that is appropriate for a dam breach scenario is not necessarily appropriate for the non-dredging scenario.

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Lewiston would become increasingly uneconomic as sediment accumulation limited shippers to lighter and lighter barges over time, but other facilities in the lower pools could continue functioning economically for much longer. DMMP/EIS 3-46.

49. The Corps did describe some features associated with light-loading barges in the DMMP/EIS. The Corps found that reducing the capacity of the river channel by one foot would increase shipping costs by 10%, and that reducing the capacity of the river channel by two feet would increase shipping costs by 22%. The Corps concluded that the increased costs in the "one foot" scenario are equal to the money saved by not dredging that quantity of sediment. Id. at 1-13. Hence, a loss of one foot in channel depth would have a net economic impact of zero. The Corps found that, in the two-foot scenario, increased shipping costs outweighed the money saved by not dredging.

50. However, this analysis of light-loading was not built into the CBA, which ignores this issue and simply assumes that all of the benefits of navigation will disappear immediately without dredging. Again, the benefits of navigation are overstated as a result, and the Corps' 16-to-1 benefit-cost ratio is inconsistent with the available evidence and fails to address important factors.

51. The impact of the Corps' immediate termination of navigation assumption on the $43 million (actually, as shown above, it is $31.3 million) benefit calculation is difficult to determine precisely, because of the proprietary nature of the computer program used to calculate that number. Nonetheless, one can get a sense of how the cost-benefit ratio might look by decreasing freight volumes over time and seeing how that might impact total benefits. Of course, without a very detailed engineering analysis, no one can know exactly how stopping dredging would affect navigation over time. For purposes of this illustration, I have produced

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two scenarios wherein sedimentation would gradually hinder navigation at a steady rate, rendering navigation unavailable at the end of a specified time. The scenarios include a steadily diminishing freight benefit over a five-year time frame and a ten-year time frame.

52. In the five-year freight reduction scenario, I assumed that freight would be reduced, as a result of siltation effects, by 20 percent in year one, another 20 percent in year two, and so on, until freight, and therefore benefits, ceased in the fifth year. After recalculating the net present value of freight benefits and annualized freight benefits, the annualized freight benefit decreased from $31.36 million to $27.55 million, a decrease of 12%. Exhibit L (summary of freight benefit timing scenarios).

53. In the ten-year freight reduction scenario, I used the same model, only spread out over ten years (thus, freight volumes, and benefits, declined by 10% each year). The resulting annualized freight benefit would have to be decreased from $31.36 million to $ 23.62 million, a reduction of 25%. Ex. L. While these are just estimates of how things could unfold, they present a more realistic scenario than the one presented by the Corps. Jones Report, 20.

54. There is no indication that the cessation of shipping, as a result of siltation, is imminent. Moreover, since the Lower Granite pool will be severely impacted long before the other pools, a gradual decrease in shipping efficiency, with a delayed cost impact similar to the 5- and 10-year scenarios described above, is probably very conservative. The fundamental point is not that I am trying to predict what is going to happen, but that the Corps' failure to consider a gradual rather than an immediate cessation of navigation benefits results in a substantial overstatement of freight benefits, to the detriment of a credible cost-benefit conclusion.

SUMMARY OF REAL COST-BENEFIT ANALYSIS

55. I have addressed the above-described omissions and shortcomings of the Corps in the revised cost-benefit spreadsheet presented in Exhibit F. To the greatest extent possible, I

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have incorporated into this analysis data that was ignored by the DMMP/EIS that come from other sources produced by the Corps itself.

56. Based on this information, it appears that a revised analysis would show some significant differences from the Corps' analysis. Whereas the DMMP/EIS determines that the navigation system produces about $43 million in benefits per year, as discussed above, this relies on data and assumptions that are invalid. First, taking into account a growth forecast that is suggested by the Corps' own Snake River-specific data, a revised analysis would show that the navigation system produces just over $31 million per year in benefits.

57. We can further incorporate into the benefit calculation a conservative ten-year gradual elimination, rather than a sudden halt, to navigation benefits. Incorporating this assumption into the calculation of benefits would show that the navigation system produces approximately $23.6 million per year in benefits. Thus, by ignoring these two highly relevant factors – ones which the Corps has not attempted to dispute – the DMMP's benefits calculation has been overstated by approximately 45%.

58. Similarly, if the Corps' cost estimate of navigation system maintenance were revised to include the capital costs of the dams attributable to navigation, as well the costs imposed on recreation and fishing that the Corps has found to be caused by the navigation component of the dams, there would be additional annual costs of approximately $10.63 million per year in 1976 dollars (for reference, this is equivalent to $33.42 million in 2002 dollars). This can be contrasted to the figure used by the Corps in the DMMP/EIS, which estimates costs at $2.7 million in 2002 dollars but ignores these capital costs and external costs.

59. Converting all of the omitted cost and benefits discussed above to a constant 1976 dollar value, a conservative cost-benefit analysis for maintenance of the navigation system

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through dredging would reflect a comparison of $7.5 million in annual benefits to $10.63 million in annual costs. Such a comparison yields a benefit-to-cost ratio of approximately 0.71 In other words, for every dollar that the navigation/dredging project costs, 71 cents of economic benefits are produced. If the Corps had not ignored the factors outlined above, its cost-benefit calculation would have been much closer to this figure than the 16-to-1 conclusion used by the Corps to justify the project.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Executed this _____ day of November, 2002, at Boise, Idaho.

_____
ANTHONY M. JONES

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