

# **Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses**



## ALPHABETICAL LIST OF COMMENTERS

*(Listed names are bookmarked in PDF file; click the bookmark to navigate to a particular comment. Note, the pertinent response immediately follows the comment. A name appearing more than once denotes comments presented on separate occasions: if public meeting, so noted; otherwise comments were written.)*

Atkins, Ed  
Brendecke, Chuck  
Brownlow, Harry  
Buchan, Arthur  
Buckley, Patrick  
Duncan, Bruce  
Ferraro, Michelle  
Gamble, James and Virginia  
Gordon, Carol  
Gosal, Kindy  
Gosal, Kindy  
Greenwald, D. Noah  
Grob, Doug  
Heinith, Robert  
Hunter, Chris  
Ireland, Sue  
Jackman, Garry  
Jackson, Verdell  
James, Carole  
Ketchum, Kelvin  
Ketchum, Kelvin  
Kluckner, Paul  
Marotz, Brian  
Marx, Jim  
Measure, Bruce  
Measure, Bruce  
Measure, Bruce and Rhonda Whiting  
Michalk, Bill  
Moses, Harvey  
Myers, Bill  
Olson, Bernie  
Rooney, Mike  
Roose, Marianne  
Roose, Marianne, Rita Windom and John Konzen  
Ryan, M. Scott  
Sachau, B.  
Schweitzer, Brian  
Studer, Brad  
Suzumoto, Bruce  
Swennes, Richard  
Trumpy, Chris  
Walston, Dean and Maryln  
Wardell, John  
Whitlam, Robert  
Williams, Paul  
Wright, Gary



Ed Atkins, Elk Mountain Farms  
Draft EIS Public Meeting, Dec. 1, 2005, Bonners Ferry, ID  
(transcript)

1

MR. ATKINS: Ed Atkins, Elk Mountain Farms. I'd like to start by thanking the Corps for all of their efforts put into the EIS process. I'd like to thank Evan, Jeff, Mick, Greg, and all those that aren't present. And especially for the extra effort they have made in coming to Bonners Ferry, meeting with us, all the stakeholders, and addressing our concerns the best they could through the process. So thank you for that.

Anheuser-Busch Companies, which Elk Mountain Farms is a subsidiary of, our corporation has a longstanding record of environmental excellence which is demonstrated in various ways throughout our facilities. I think it's obvious that we're committed to species recovery and habitat recovery enhancement. It can be seen at different things that we have at the farm, different initiatives through our Sea World operations and throughout our corporation.

2

Having said that, we also believe that these types of recovery efforts have to be based on good sound science and not, you know, these various arbitrary methods that are used, in our opinions. And having said that, I'm going to have Chuck Brendecke, who is a consultant that works for the farm, address some of our concerns in the EIS.

**COMMENTER**

**RESPONSES**

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**ATKINS, Ed**

Elk Mountain  
Farms

Draft EIS Public  
Meeting, Dec. 1,  
2005, Bonners  
Ferry, ID  
(transcript)

1. Comment noted. Thank you.
2. Comment noted. The Corps and Reclamation are committed to fulfilling their responsibilities under the Endangered Species Act and will continue to use the best available science in our decision-making. We believe that the performance based adaptive management approach adopted by the USFWS 2006 BiOp will provide the means for incorporating new science as it becomes available.

Chuck Brendecke  
Draft EIS Public Meeting, Dec. 1, 2005, Bonners Ferry, ID  
(transcript)

MR. BRENDECKE: Elk Mountain will be submitting written comments on the draft and so these are just sort of preliminary thoughts on a first read through the draft EIS. And there's not really anything here that you probably haven't heard before, Evan.

1

We just want to observe that when Libby Dam was constructed in 1974, it solved a huge flooding problem in the Kootenai Valley. And it also led to Kootenay Lake operating at a lower level than it had before. And what it looks like now, over the last ten years, is that -- people in the Kootenai Valley welcomed Libby Dam when it was constructed for that reason. But now over the last ten years, with the flow augmentation program and now, you know, to some degree with the VARQ, it looks a lot like the Corps is backing away from the flood protection that it offered when Libby Dam was first constructed in 1974.

We have to look at the whole change that's happened over the last ten years. It's pretty dramatic. VARQ in and of itself doesn't have a very big effect on what's going on now. But the whole program of flow augmentation and VARQ has had a big impact. And it's inching the flow regime of the river back toward the one that was problematic before Libby Dam was constructed.

2

I think it's important to acknowledge that all other things being equal I'm hearing, specifically referring to forecast accuracy, VARQ will in many years provide less flood control space than the current -- than the standard flood control operating rule, and it can't do anything but increase the risk of flooding. That may be a very small risk. And it's probably not one that can be analyzed very well with the tools at hand. But I think it's an important issue. And I think the EIS can probably do a little bit more to address that and how forecast accuracy plays into that.

What efforts are going on the part of the Corps and other agencies to improve the accuracy of inflow forecast to help support this kind of operation of the dam. I think that would be a welcome addition.

3

A significant portion of the adverse impact suffered by agriculture stem from the flow augmentation program. And the draft EIS acknowledges the flow augmentation program. The impacts on agriculture weren't really evaluated when the EIS for the system operation review was done back in the mid-'90s.

And so I think it's important to understand that a lot of folks here think the no action alternative ought to be what the operation was before flow augmentation started. Because that -- the impacts of flow augmentation never really got evaluated -- the impacts on agriculture never really got evaluated in that earlier EIS. And we think that that ought to be part of the decision that's in this EIS.

3 { Now, you made a statement earlier that the Corps' hands are sort of tied here with respect to doing flow augmentation. And perhaps you could explain to the folks here a little bit more exactly why that is. Because it's not -- it may not be clear to everybody.

4 { The flow augmentation program doesn't seem to have demonstrated much effectiveness in improving sturgeon recruitment. It's a very large experiment, pouring all this water down the river, to try to improve sturgeon recruitment. And we don't see much evidence that it's having a lot of benefit. And I think it would be of interest to people in the community to see the Corps and the other agencies focus a little bit more on other issues that might be affecting the health of the sturgeon population.

There are number of issues that are touched on in the draft EIS. But I think the EIS would be more complete if it talked about some of the other things that are trying to be done. I know there's been some discussion of in-river habitat improvement measures, of changing locations where sturgeon are being -- sturgeon eggs are being released from the hatchery. I think that the EIS would be a little more complete if it had some discussion of that in there, because those would seem to be important alternatives.

5 { From the standpoint of local agricultural interests, preferred alternative -- if you go back and take down my previous statement that for many people are probably wondering why the no action alternative isn't the way things used to be. And if you compare the seepage impacts that are characterized in the EIS with the pre-flow augmentation, pre-VARQ operation, there's a pretty substantial hit in terms of economic impacts. It's about \$1.2 million. And even if you take the fish flows, the flow augmentation program as a given, there's still a risk of a half a million dollars of increased seepage impacts associated with VARQ.

6 { I think that one of the earlier questions was what -- what is the Corps going to do about that or what are the other agencies going to do about that or is that just up to the local impacted people to just eat that cost. And I think that it would be a better EIS if it talked a little bit more about what could be done there. And, quite frankly, what -- what are the ways the Corps can help local agricultural interests deal with those issues.

Some of the things that -- some of the engineering solutions are certainly within the capability of the Corps and certainly within the knowledge base of the Corps of Engineers. It would be good if there was a little bit more, sort of, guidance in there about what other things we can do to try to mitigate some of these adverse consequences.

7 { I think the draft EIS would be improved if it had a more complete or a more comprehensive discussion of flow duration. We talked a little bit about this off the record before the meeting. Particularly because it seems that the duration of high flows is as important or perhaps more important than the actual peaks from the standpoint of impacts on agriculture in the valley.

8 { The draft also noted that there were concerns in Canada about the water levels in Kootenay Lake. And I deduced from those discussions that there might be interest there in trying to hold the lake at a lower level now because of encroachment and development that's happened. And I'm -- perhaps for the benefit of the people here, and in the EIS as well, we could -- it be would be

8 { interesting to know what, if any, options there might be to operate Kootenay Lake at a somewhat lower level that might allow the flow augmentation program to proceed with a lesser impact on ground water levels in the valley.

9 { The draft -- just a last comment. The draft EIS said that there were ongoing evaluations of seepage issues. And I would be interested in knowing, and perhaps the rest of the folks in the room too, interested in knowing what those are, those ongoing evaluations. Thanks.

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**COMMENTER**

**RESPONSES**

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**BRENDECKE, CHUCK**

Draft EIS Public Meeting, Dec. 1, 2005, Bonners Ferry, ID (transcript)

1. Operations at Libby Dam provide for a variety of authorized uses including, hydropower, flood control, recreation, fish and wildlife, navigation, and other benefits. The Corps is responsible for taking into account a variety of statutes (such as the Endangered Species Act), treaties, executive orders, etc., in its operation of Libby Dam. These include, but are not limited to, the Columbia River Treaty, the International Joint Commission (IJC) 1938 Order on Kootenay Lake, relevant biological opinions, the Northwest Power Act, and Libby Dam's enabling legislation. Although the project will never be able to prevent all floods, project operations to date have been very successful at minimizing flood damages in the Kootenai Valley.

2. Although the flood control space provided by VARQ FC is generally less than under Standard flood control, hydroregulation modeling shows that VARQ FC operations will continue to provide flood control at the same level as operating under Standard FC. The modeling incorporates forecast uncertainty, and the simulations provide a means for testing both the ability of Standard and VARQ FC to overcome potential problems caused by inaccurate forecasts. The Corps periodically updates runoff forecast methodology to decrease the range of possible error. Any future changes in forecast methodology would further reduce possible errors and thereby improve the Corps' ability to manage Libby Dam operations for its multiple purposes.

3. This VARQ EIS includes a no-action alternative that provides flow augmentation to reflect operations of the project that already have been covered by NEPA documentation in the 1995 System Operation Review (SOR) EIS. The Final EIS, in addition to evaluating the effects of VARQ FC, addresses the effects of groundwater seepage in the Kootenai Valley associated with flow augmentation for fish from Libby Dam, impacts which the SOR EIS did not consider. The analysis of Libby Dam operations in the EIS uses "benchmark operations," which do not include fish flows, as a means of comparing the effects of the alternatives with fish flows. This analysis documents the incremental effects of the fish flows on all resources, including those related to high groundwater levels and agricultural production. As noted above, among its many responsibilities, the Corps, pursuant to the Endangered Species Act (ESA) must ensure its actions do not jeopardize the continued existence of the listed species or adversely modify the designated critical habitat of listed species. Through ESA consultation with the USFWS and NOAA Fisheries, certain operations like flow augmentation have been identified as necessary to fulfill this responsibility. We will continue to work with the local communities to ensure that all of the Corps' requirements in operating Libby Dam are better understood.

4. With the issuance of the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative (RPA), the preferred alternative for Libby operations in the Final EIS is LVB. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a more normative hydrograph to achieve desired habitat attributes of depth, velocity and temperature to benefit sturgeon. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment in its 2006 Biological Opinion on the effects of Libby Dam operations on listed species and designated critical habitat. Currently, the only means available to provide up to 10 kcfs above powerhouse capacity (approximately 25 kcfs) to achieve a total release of 35 kcfs from Libby Dam is by spill. The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol. This protocol will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. As part of this protocol, the Corps will not voluntarily exceed elevation 1764 at Bonners Ferry. The 2006 Biological Opinion RPA recognizes that there are several ways to achieve the desired attributes, and allows the Corps and BPA flexibility to select the means to provide for the attributes. In the near term, release of flows up to 35 kcfs out of Libby is the means available to achieve some of the desired

**COMMENTS**

**RESPONSES**

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**BRENDECKE, CHUCK**

[CONT'D]

attributes; however, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

5. You correctly describe the incremental effect of the fish flows on agricultural interests as discussed in Section 3.3.12 of the DEIS. Concerning the rationale for defining the no-action alternative as LS1 (Standard FC with fish flows including sturgeon flows up to powerhouse capacity) rather than LS (Standard FC without fish flows), please refer to our Response to Comment 3 above.

6. Comment noted. The Corps recognizes the seepage impacts to the agriculture interests in the Kootenai Valley and Section 3.5.12 of the Final EIS identifies potential mitigation for agricultural groundwater seepage. The Corps is not authorized by Congress to implement these measures. However, as discussed in Response to Comment 4, the 2006 USFWS RPA recognizes that there are several ways to achieve the habitat attributes for sturgeon recovery and provides flexibility for the Corps and BPA to pursue habitat actions that may reduce the reliance on flow augmentation for sturgeon in the future, which may minimize future impacts from groundwater seepage.

7. We recognize that high peak flows of short duration would result in lower impacts from groundwater seepage than longer duration flows. The draft EIS has a variety of figures relating to peak one-day river elevations at Bonners Ferry, Idaho and peak one-day elevations of Kootenay Lake. To better address how the different alternatives affect river elevations over periods of longer duration, Section 3.3 of the EIS has been revised to include discussion and supporting figures for 7-day and 15-day peak Kootenai River elevations. This discussion provides some hydrologic context to the later discussion of actual economic impacts of high groundwater levels on agriculture that is provided in Section 3.3.12.

8. Specific requests to change management of Kootenay Lake levels requires coordination with Canada and a determination that a new operation would be consistent with the International Joint Commission Order of 1938 concerning Kootenay Lake levels. At this time, the Corps and BPA are focusing on a combination of flow, habitat, conservation aquaculture, and other ecosystem-based efforts to support sturgeon recovery. While altering the management of Kootenay Lake levels in the spring has been discussed, experts continue to evaluate whether higher or lower Kootenay Lake levels may be more effective in creating habitat conditions conducive to successful sturgeon reproduction. Adaptive management of sturgeon recovery efforts will continue to evaluate all feasible options to provide conditions suitable to white sturgeon reproduction.

9. There are no further evaluations of seepage currently underway—the evaluation in the EIS was based on the best available capability. We apologize if language in the Draft EIS implied there were ongoing evaluations of seepage issues. The Final EIS (Section 3.5.12) has been revised to remove the implication that evaluation of agricultural seepage is continuing, but the Corps recognizes that this issue will continue to be of considerable interest to local stakeholders during our routine coordination on Libby Dam operations.

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HARRY BROWNLOW: You've got all my information. Harry Brownlow from B.C. Hydro, and here's my card. So, I'm just going to elaborate a little bit more on what Kelvin referred to on the flood -- study that we did. It was done jointly with Fortis B.C. and Columbia Power Corporation. We actually flew the west arm of Kootenay Lake using lidar which is a -- it's just a different method other than aerial photography to collect digital elevation information. So, we've gone through that. Then we had an engineer run through the photographs to identify properties at risk at certain elevations, so that's where we came up with certain elevation impacts at 1755, 1752 and 1750. And we'll give you the memo report as part of our submission. So, what we found from the first study is we found actually a fairly high level of impact because we had looked at 1755 from Queen's Bay right through to Nelson and we hadn't -- in the digital elevation mapping that we prepared, we ran it kind of flat and that was sort of an improper way to assess this. So we took a second look at it and noticed that the difference in elevation between Queen's Bay and Nelson was about two and a half feet when you're running Queen's Bay at 1755. Nelson is only about 1752 and a half. So, we re-ran a lot of the assessments on the structures and came up with lower numbers of impact. So at 1755 we came up with about four and a half million dollars of impact. At 1752, ah, I think we're at just over one million. This will all be in the memo in detail, but that's -- those are the orders that we're looking at. We wanted to try and confirm this with some information from the 1997 floods where there was compensation provided by the provincial government, but we haven't been able to get that -- those numbers from them. Those numbers are prepared on a regional basis, so if we can find the actual regional numbers, whatever they were for this area, but we can't really find the specific numbers for Kootenay Lake. Now, that's part of the regional -- am I answering questions?

SUE HEATON: Those impacts, were those just like building impacts or what? Can you explain what you mean by impact?

HARRY BROWNLOW: Well, that's what we're trying to find out from James White at the Province. He's trying to look into the information they've got on compensation.

SUE HEATON: You were saying 4.5 million at 1755.

HARRY BROWNLOW: Yeah. Those are our observations on structures that fall below the 1755 contour elevation at Queen's Bay and 1752.5 at Nelson.

SUE HEATON: I just wanted to verify what you meant by impacts.

HARRY BROWNLOW: So we're just looking at what structures are there. And through this particular technique you're actually only looking at, you know, the structures from an aerial photograph essentially, so it's hard to tell whether or not they've already prepared for flood in that structure. They may already have sandbags or berms or bulkheads that could protect them from a higher elevation flood, we don't know that, that's why our assessment is

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fairly general at this point. And we've used other Building Code information to determine that at 1752 or whatever it was, you've got a foot of water, therefore it must be valued at such and such a rate. And those rates are also in the memo you've got. So, that's the level of deep fill we've got. And again, that's just the west arm of Kootenay Lake, not all of Kootenay Lake. So, we've done a little bit of work on that. Any other questions? Anything else, Kelvin?

KELVIN KETCHUM: No, you did it.

2

HARRY BROWNLOW: Just to reiterate another point on monitoring or on a review process, I agree with the comments that everybody's made on the review process, I think that's important. If we do a review process, there's going to have to be -- I think we need to have some sort of monitoring programme, some way of once you get to the review process what data are you going to use to determine whether or not you've checked the right values and you have the right information. We can all agree on a review process and a term, but if you don't do anything between now and then, we're stuck in the same situation reviewing something without great information. So, programmes to assess impacts to fish, impacts to people, floods, recreation, that kind of thing may be something you need to collect a little more information on. I don't know what you do on the U.S. side, whether that's part of the process or not, but if we're going to review it then you should monitor. Thanks.

Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses

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**COMMENTER**

**RESPONSES**

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**BROWNLOW, HARRY**

BC Hydro

Draft EIS Public Meeting, Nov 28, 2005, Nelson, BC (transcript)

1. Thank you. The DEIS evaluates potential flooding impacts on the West Arm of Kootenay Lake based on preliminary information available from BC Hydro at the time the draft was prepared. The economic evaluation of flood impacts have been updated in the Final EIS based on values in the most recent BC Hydro report for Kootenay Lake.

2. We routinely track river and lake levels, and river flows. We're also in touch with our counterparts in British Columbia concerning biological and ecosystem issues, especially through the Kootenai River White Sturgeon Recovery Team and the International Kootenai Ecosystem Restoration Team. There are several evaluations underway by various organizations concerning biological, water quality and flood control issues. Thus, several types of data are already being collected by both US and Canadian parties. We welcome any information that may be offered by specialists in Canada, or requests for information we may have.



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

4601 N. Monroe Street • Spokane, Washington 99203-1295 • (509) 329-3400

December 22, 2005

Mr. Dan Lechefsky  
1150 N. Curtis Road, Suite 100  
Boise, ID 83706-1234

Dear Mr. Lechefsky,

Thank you for the opportunity to comment on the draft Environmental Impact Statement (DEIS) for the Upper Columbia Alternative Flood Control and Fish Operations (Proponent – Bureau of Reclamation & Army Corps of Engineers). The Department of Ecology has reviewed the documents and has the following comments:

Water Quality Program

The DEIS chooses HV, or variable discharge flood control -VARQ- with bull trout and salmon augmentation flows, as the preferred alternative. Given this, the document doesn't provide much information on the effects of increased spring flows under HV on the amount and timing of forced spill and total dissolved gas (TDG) generation at Box Canyon and Boundary dams on the Pend Oreille River. The DEIS states that, since both Box Canyon and Boundary dams have relatively large hydraulic capacities, only small increases in spill would be expected at both dams under the proposed HV regime during seasonal high flows. However, no graphs, figures or other means of quantifying the effects of the proposed changes are provided to support this statement.

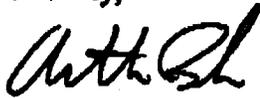
In order to properly assess the possible effects of this proposal on TDG levels in the Pend Oreille River in Washington state, and determine whether the change in flow patterns would lead to more frequent violations of state water quality standards, we need to know how much increase in spill duration and volume could be predicted at both dams during the spring freshet, along with any expected increases in TDG. Please provide this information in the final EIS.

Both Box Canyon and Boundary dams can generate high levels of dissolved gas, up to 140% saturation and above, when they are forced to spill water. Both typically spill at least some of the time during the spring runoff of an average to high flow year. Neither has sufficient capacity to route the entire average annual high flow through their turbines. Box Canyon now starts spilling when flows exceed 27,400 cfs (power plant capacity will be upgraded to 32,400 cfs within the next ten years); Boundary spills when flows exceed approximately 52,000 cfs. It has been, and continues to be, challenging to come up with abatement strategies to bring these facilities into compliance with the state's dissolved gas

standard during the historical flow regime. HV has at least the potential to make compliance with the standard even more difficult.

High dissolved gas levels from the Clark Fork-Pend Oreille system persist many miles downstream, at least as far as the upper Columbia River and Lake Roosevelt, and can be quite harmful to many fish including both salmon and trout. Therefore, the effects of the HV regime on the timing and duration of spill and the levels of TDG produced should also be quantified for the two dams on the Pend Oreille River in British Columbia. Waneta dam, in particular, tends to generate dissolved gas when forced to spill water. Turbine upgrades are planned at Waneta in the near future to bring it into hydraulic balance with Seven Mile and Boundary dams upstream. However, if spring high flows are increased, with resulting increases in both the volume and duration of spill, some of the benefits of this gas abatement measure may be diminished.

Sincerely,



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E043-730

**COMMENTER**

**RESPONSES**

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**BUCHAN, ARTHUR**

Washington  
Department of  
Ecology

1. As noted in Section 4.3.2 of the EIS for the Pend Oreille River basin, TDG saturation modeling of the effects of alternative HV on flows through most of the dams was not possible because sufficient data were not available, particularly for the private dams and those located in Canada. However, additional information regarding the change in spill duration and volume at Box Canyon, Boundary, Seven Mile, and Waneta dams has been incorporated for the Final EIS.

December 27, 2005

Evan Lewis, PM-PL-ER  
Seattle District, U.S. Army Corps of Engineers  
PO Box 3755  
Seattle, WA 98124-3755

**RE: Comments on Draft EIS for the Upper Columbia Alternative Flood Control and Fish Operations Document of November 2005**

Dear Mr. Lewis:

The Public Utility District No. 1 of Pend Oreille County (District) is submitting this letter in response to the Corps of Engineer's Upper Columbia Basin Alternative Flood Control and Fish Operations: Draft Environmental Impact Statement.

1 { The District appreciates that the Corps acknowledges that the timing and magnitude of future releases at Hungry Horse will have a significant impact on Pend Oreille between Albeni Falls Dam and Box Canyon Dam, in the Unavoidable Adverse Effects section of the Executive Summary (pages S-15), and it **will increase** the chance of flooding, elevated TDG levels, erosion and or subsequent potential damage to sites of archaeological and/or historic note.

2 { What we find hard to accept in the draft EIS is the poor response in the Cumulative Impacts and Mitigation Sections of the text (pages S 11- S 14) in which the authors state that "no mitigation needs were identified based on the impact analysis" in Pend Oreille County. The authors do a credible job of identifying both negative and positive impacts of the Kootenai River Basin, but fail to mention similar issues in the Pend Oreille Section. In the Mitigation, and also Cumulative Impact sections, no mention is made of increased flooding, and impacts on erosion, power production, resident fisheries, TDG, or archaeological/historic sites in the Pend Oreille Basin. Why is it that the authors acknowledge some of our concerns...e.g. flooding, TDG, and archaeological sites in the Unavoidable Impacts section...but these issues are not addressed in the Mitigation and Accumulative Impacts Sections?

Our continued concern with the VARQ process, regardless of what option is considered, is the inherent errors in forecasting spring runoff events .

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It is our experience that early spring runoff forecasts are frequently inaccurate. While snow pack forecasts can determine the amount of snow pack for that month, there is no current method to determine what the actual snow pack will be near the end of the snow season, and of greater concern, there is no forecast that can predict what the runoff pattern will be.

### Recommendations/Summary

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1. The draft EIS of November 2005 needs to be revised to include in both the Cumulative Impacts and Mitigation Sections the impacts on flooding, local fisheries, TDG, erosion and Archaeological sites as well as lost generation and economic impact in the Pend Oreille Valley ( Cusick Flats) area of the Pend Oreille River.

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2. Find a way to mitigate for some of the impacts mentioned above. Potential solutions would be as follows:

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- Reduce the flows allowed out of Hungry Horse during the weeks of April/May, when the Calispell Creek is in flood stage.
- Increase the flood protection provided by Albeni Falls by holding Lake Pend Oreille at a lower lake level (2051) more often than the current regime of approximately every 3 years.

7

- Change the definition of the threshold of “low water” definition from 80% - 130 % to 80% - 110% ...which would reduce the potential of overreacting to an apparent “dry year”, thus increasing flood protection for our county.

8

It is no exaggeration to say that this proposal impacts Pend Oreille County more than any other locale. Our topography creates this situation with the natural restriction in the river basin. It will affect our farmers, our electric and water rate payers and our river dwellers. We are asking for you to look more deeply before finalize your report about impacts in this area.

Thank you for the opportunity to respond to the Draft EIS document.

Sincerely,

Patrick V. Buckley  
Natural Resource Manager

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**COMMENTER**

**RESPONSES**

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**BUCKLEY, PATRICK**

Pend Oreille PUD

1. Comment noted. The EIS does not postulate a significant effect from Hungry Horse Dam operations on areas of the Pend Oreille River downstream of Albeni Falls Dam. Extensive modeling indicates there is no significant flood impact as a result of VARQ flood control in the Pend Oreille River basin below Albeni Falls Dam. Because the change in flows between the alternatives is not large, VARQ has a negligible impact on either increasing or decreasing the likelihood of exceeding flood stage below Albeni Falls Dam.

Please note that the comment "...releases at Hungry Horse will have a significant impact on Pend Oreille between Albeni Falls Dam and Box Canyon Dam, in the Unavoidable Adverse Effects section of the Executive Summary (pages S-15), and it will increase the chance of flooding ..." is not correct. The bulleted list of impacts in the Executive Summary includes: "Existing potential for adverse flooding effects under the implementation of either alternative." That means the current risk of flooding in the Pend Oreille River basin will not be significantly different regardless of the flood control scheme chosen for Hungry Horse.

2. Impacts are addressed related to TDG (Sec. 4.3.2), aquatic resources (Sec. 4.3.3), power production (Sec. 5.3.2; see also Appendix J) and benefits (Sec. 5.3.13; see also Appendix K), and cultural resources (Sec. 4.3.9), with erosion also discussed as a factor where applicable in various sections. No mitigation needs were identified beyond avoidance and minimization measures already being implemented. Flooding and TDG impacts were identified among unavoidable adverse impacts (Sec. 4.6).

3. Comment noted. Water supply forecasts issued in the early spring do tend to be less accurate than those issued later in the season when more snow has accumulated. However, as new forecasts are issued each month, their accuracy improves, and flood control requirements are updated accordingly. We accounted for risk associated with forecast error by modeling flood control operations with rule curves based on forecasted runoff volumes appropriate for each month's snow conditions. Therefore the flood control rule curves represented the end of month target elevations for the reservoirs in changing conditions. This modeling technique incorporates forecast uncertainty, and the results show minimal effects from Hungry Horse Dam operations on areas of the Pend Oreille River downstream from Albeni Falls Dam. Ultimately, modeling simulations, water supply and weather forecasting are among the tools water managers use daily in decision-making.

4. Comment noted. Please see Response to Comment 2.

5. Please refer to Response to Comment 1. Reservoir regulators evaluate hydrologic conditions in the Clark Fork/Flathead/Pend Oreille basins in real time and adjust project releases accordingly. Real-time water management activities will continue to occur, regardless of which alternative is implemented.

6. Winter operations of Lake Pend Oreille are determined in the fall before water supply forecasts are available. Winter operational decisions provide for the protection of kokanee spawning around Lake Pend Oreille within the flood control rule curves. Those decisions are consistent with the USFWS 2000 Biological Opinion, which addressed Albeni Falls operation on listed bull trout, and the operations considered in the NOAA Fisheries 2004 Biological Opinion. The flood control operation for Albeni Falls Dam is primarily for the river and lake above the dam; however, operational flexibility is used to help address flood control downstream.

7. We do not define "low water" in the range of 80-130% of average; that is the medium range of the water supply forecast. The lower range, in the context of VARQ FC, is defined as less than 80% of average.

8. Comment noted. We believe that we have evaluated all likely impacts and disclosed them in the Final EIS.

Sent: Thursday, November 24, 2005 6:19 PM  
To: Upper Columbia EIS  
Subject: Unnecessary Security

Hello,

On this page <<http://www.usbr.gov/pn/programs/VARQ/drafteis/index.html>>, one can download, either in full or in part, the draft UPPER COLUMBIA ALTERNATIVE FLOOD CONTROL AND FISH OPERATIONS ENVIRONMENTAL IMPACT STATEMENT.

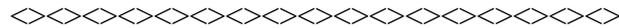
1

If the DEIS is downloaded in full (5.6 MB), the PDF of it forbids content extraction or copying. If the DEIS is downloaded chapter by chapter, the PDFs of the chapter do not forbid content copying and extraction.

What the devil is going on here? There is no need to forbid content extraction and copying from a document that has been released for public comment. All that restriction does is increase the workload on those who are preparing comments on the DEIS.

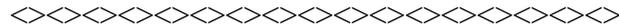
Best regards,

James Conner



James R. Conner  
PO Box 7353  
Kalispell, MT 59904

[www.pixeljim.com](http://www.pixeljim.com): host of the Flathead from Space page Webmaster, Flathead Lakers:  
[www.flatheadlakers.org](http://www.flatheadlakers.org)



**COMMENTER**

**RESPONSES**

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Connor, James

1. Our apologies. Any difficulties encountered in accessing the draft EIS material were inadvertent. An unlocked version of the file with the main body of the EIS was posted on the project website on December 12, 2005.



P.O. Box 9131, Stn Prov Govt  
844 Courtney Street, 3rd Floor  
Victoria, British Columbia  
Canada V8W 9B5  
Tel: (250) 953-5179  
Fax: (250) 356-2819

January 3, 2006

Mr. Evan Lewis, PM-PL-ER  
U.S. Army Corps of Engineers ("USACE")  
Seattle District  
P.O. Box 3755  
Seattle, WA 98124-3755

**Subject: Draft Environmental Impact Statement ("DEIS") for the Upper  
Columbia Alternative Flood Control and Fish Operations ("VARQ")**

Dear Mr. Lewis:

This letter is in response to the request for comments on the DEIS prepared by the USACE and the Bureau of Reclamation to evaluate the potential effects of VARQ at the Libby and Hungry Horse dams in the Upper Columbia Basin, which was released on November 4, 2005.

Columbia Power Corporation ("CPC") comments supplement the ongoing comments of BC Hydro, the Canadian Entity under the Columbia River Treaty ("CRT"), regarding power and flood control issues. In addition, our comments complement the interests and concerns of the Columbia Basin Trust ("CBT") regarding the ongoing economic, environmental and social impacts of the CRT and VARQ on the Columbia Basin Region in British Columbia. We understand that CBT is writing separately to the USACE in this regard.

#### **1. CPC Interests in the DEIS**

1 The interests of CPC and its joint venture partner CBT Energy Inc. ("CBTE") are primarily related to our power projects and development rights on the Kootenay, Columbia and Pend d'Oreille Rivers. CPC/CBTE hold a number of water licences for the diversion and use of water on the Kootenay and Columbia rivers, a water licence for storage on Kootenay Lake and a water reserve on the Pend d'Oreille River at Waneta. In addition to the Arrow Lakes power project on the Columbia River, and the Brilliant and

... /2

1 Brilliant Expansion power projects on the Kootenay River, CPC/CBTE are developing the Waneta Expansion power project on the Pend d' Oreille River. A water licence application was filed for the Waneta Expansion project in November 2003, and an Environmental Assessment Certificate application will be filed shortly. In addition to generating incremental power from water that would otherwise be spilled, CPC/CBTE power projects generate important downstream environmental and fisheries benefits by reducing dissolved gas saturation levels in the lower Kootenay and main stem Columbia Rivers. This positive contribution to reducing dissolved gas levels has been recognized by individual U.S. members of the Transboundary Gas Group.

## 2. CPC Concerns with the DEIS

As with the December 2002 Final Environmental Assessment prepared by the USACE and the Bureau of Reclamation regarding Interim Implementation of Upper Columbia Basin VARQ, CPC's general concerns include:

- 2 • whether the proposed VARQ is consistent with the CRT and existing International Joint Commission ("IJC") Orders;
- 3 • whether impacts and concerns in Canada are incorporated in the DEIS; and
- 4 • whether appropriate mitigation and compensation measures are agreed to before alternative flood control operating regimes are implemented.

5 Under the U.S. *National Environmental Policy Act* ("NEPA"), the DEIS is required to include reasonably foreseeable transboundary impacts in Canada. This was confirmed at paragraph 4 of the USACE December 30, 2002 Response to CPC Comments on Interim Implementation of Upper Columbia Basin VARQ. Despite this, the DEIS does not include a discussion of Canadian power impacts associated with VARQ, even though section 5.2.2, Table 5-2, page 311, clearly identifies Canadian power projects<sup>1</sup> as being "in the study area" and page S-16 under Unavoidable Adverse Effects notes that:

*Reduction in power generation in the winter under VARQ FC alternative combinations would reduce revenues from power sales to Federal, non-Federal, and Canadian power producers (emphasis added).*

We believe that a discussion of Canadian power impacts must be included in the DEIS to take into account these reasonably foreseeable transboundary impacts in Canada.

... /3

<sup>1</sup> To Table 5.2 we would add CPC/CBTE's 125 MW Brilliant Expansion power project, which is under construction and scheduled to be completed in 2006, and CPC/CBTE's 435 MW Waneta Expansion power project, which is under development and expected to be completed in 2010. Water quality benefits from the Brilliant Expansion in the form of a reduced incidence of involuntary spill and thus reduced dissolved gas levels in Canada and Washington are cited in section 5.2.3 at page 315. In addition, references to Aquila and West Kootenay Power in Table 5.2 should be changed to FortisBC Inc., and the capacity of CPC/CBTE's Brilliant power project, which CPC/CBTE have upgraded since acquiring it in 1996, should be changed to 145 MW from 109 MW.

As set out in its letter of comment of January 3, 2006, BC Hydro has estimated Canadian power impacts associated with the proposed Libby VARQ operation due to **both** a shift of generation to lower value periods (i.e. **reduced revenues from power sales**) and lost generation due to increased spill (i.e. **reduced power sales**). BC Hydro notes that:

*While the annual variations of the impacts are large ... the revised flood control operation would reduce the expected Canadian generation downstream of Libby, on average, by approximately 80 GWh per year, for an annual value loss in the order of C\$ 6 to 8 million [or C\$ 60 to 80 million on a present value basis]. The interim implementation of Libby VARQ FC during 2005 resulted in actual Canadian energy losses documented at approximately C\$ 4 to 5 million relative to Libby operations under Standard FC.*

5

Additional adverse Canadian power impacts are associated with the proposed Hungry Horse VARQ operation. These are largely due to foregone generation because of reduced flows in January-April and increased spill during June (i.e. **reduced power sales**) at Canadian projects on the Pend d'Oreille River (Seven Mile, Waneta and CPC/CBTE's Waneta Expansion). In this regard, BC Hydro notes that:

*Our rough estimate of the annual average generation losses at Canadian hydro projects on the Pend d'Oreille River is 50 to 60 GWh per year, valued in the order of C\$ 4 to 6 million per year [or C\$ 40 to 60 million on a present value basis].*

As noted in the January 3, 2006 letter of BC Hydro, by reserving less flood control storage space and increasing spill, Libby and Hungry Horse VARQ also provide less flood control protection and cause adverse impacts on water quality for downstream locations in Canada than the flood control regimes in effect prior to implementation of VARQ. The DEIS documents this in the Executive Summary under Unavoidable Adverse Effects at pages S-14 to 16, in Table S-3 at page S-17, in Table S-5 at pages S-27 to 28, in section 3.3.1 at pages 106 to 108 and Figures 3-14 to 3-16, in section 5.2.3 at pages 312 to 315 and in section 5.3.1 at pages 341 to 342 and Figure 5-14.

6

Finally, white sturgeon in British Columbia are identified in section 5.2.5, Affected Environment, at page 319, as a Canadian national Species of Special Concern<sup>2</sup> on the main stem Columbia River upstream from Grand Coulee Dam that, along with the U.S. federally endangered and threatened bull trout and bald eagle species, may be affected by VARQ. Having thus identified Columbia white sturgeon in Canada, no reference is then made to them in section 5.3.5, Environmental Consequences, at pages 364 to 365, where potential impacts from VARQ on bull trout and bald eagles are discussed. Potential impacts from VARQ, as altered by Boundary Dam operations, on Columbia white sturgeon in Canada should be addressed in section 5.3.5 (even if it is only to explain, as with the bald eagle, that the species would likely not be adversely affected). Columbia white sturgeon in Canada are the subject of a joint Canada-U.S. recovery initiative, and the white sturgeon spawning area below Waneta Dam is viewed as important habitat.

7

... /4

<sup>2</sup> Also "red-listed" as critically imperiled at the provincial level.

In summary, the proposed VARQ operating regimes for Libby and Hungry Horse are expected to result in adverse power, flood control and water quality (e.g. dissolved gas) impacts in Canada. These are significant issues for CPC and CBTE that must be raised in the EIS and addressed. CPC, on behalf of the CPC/CBTE power project joint ventures, respectfully requests that implementation of the proposed VARQ operating regimes be deferred until a method to address these adverse transboundary impacts in Canada has been agreed to, including appropriate mitigation and compensation measures.

Yours truly,

*Bruce Duncan*

Bruce Duncan  
Vice President  
Strategic Planning & Regulatory Affairs  
Columbia Power Corporation

cc: Ed Pietraszek, Acting President, Columbia Power Corporation  
Ron Miles, Interim Chief Executive Officer, CBT Energy Inc.  
Neil Muth, Chief Executive Officer, Columbia Basin Trust  
Bob Elton, Chair, Columbia River Treaty Canadian Entity, BC Hydro  
Kelvin Ketchum, Canadian Chair, Columbia River Treaty Operating Committee  
Greg Reimer, Deputy Minister, Energy, Mines and Petroleum Resources  
Chris Trumpy, Deputy Minister, Environment  
Shelley Murphy, A/Director, Ministry of Energy, Mines and Petroleum Resources  
Les MacLaren, Executive Director, Crown Agencies Secretariat  
Dan Millar, Environment Canada  
Wally Koschik, FortisBC Inc.  
Richard Deane, Teck Cominco Metals Ltd.

**COMMENTER**

**RESPONSES**

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**DUNCAN, BRUCE**

Columbia Power

1. Comment acknowledged.
2. The Corps is committed to operating Libby Dam in a manner consistent with its obligations under the Columbia River Treaty (Treaty), the Libby Coordination Agreement, and the 1938 Order on Kootenay Lake operation from the International Joint Commission (IJC). We will continue to engage with Canadian interests regarding the preferred alternative in the Final EIS.
3. The Corps has incorporated information provided concerning impacts of alternatives in Canada, including information provided since the release of the Draft EIS, into the Final EIS.
4. Consistent with the White House Council on Environmental Quality advisory memorandum on transboundary effects, dated July 1, 1997, concerning mitigation, we believe that the EIS has appropriately identified potential mitigation. Compensation issues are matters appropriately addressed through established Columbia River Treaty processes.
5. Please see Response to Comment 4 above. Hydroregulation data were provided to Canadian technical and other representatives as soon as those data were available. Responses were solicited regarding anticipated impacts to Canadian resources. Following release of the Draft EIS, we received additional information on hydropower effects of the alternatives in Canada, and have incorporated the updated information into the Final EIS (Sec. 5.3.2, Hydropower, and Sec. 5.3.13, under Hydropower Benefits). Please also refer to the Responses to BC Hydro Comments.
6. We believe that under the new preferred alternative, LVB, including the ability to manage operations in real time, the level of flood protection is maintained. We acknowledge that the frequency of reaching a given stage below flood level may increase under VARQ; however, this does not increase the likelihood of exceeding current flood stages. Please also refer to Responses to BC Hydro Comments.
7. Comment noted. Sec. 5.3.5 of the EIS is being amended to reflect this information; no adverse impact is expected.
8. Please see Response to Comment 4. Information received from Canadian interests on impacts of alternatives has been incorporated into the EIS, including effects on power generation, flood control, recreation, wildlife, and aquatic resources.



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## City of Trail

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File #0470-01

January 31, 2006

Mr. Evan Lewis  
Environmental Resources Section  
Seattle District  
US Army Corps of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755  
USA

Dear Mr. Lewis:

**RE: UPPER COLUMBIA ALTERNATIVE FLOOD CONTROL (VARQ) AND FISH OPERATION - DRAFT ENVIRONMENTAL IMPACT STATEMENT**

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Trail City Council reviewed the Columbia Basin Trust's response to your request for comments with respect to the implementation of Alternative Flood Control and Fish Operations at Libby and Hungry Horse Dams in Montana.

1 Council wishes to advise that they concur with the conclusions and recommendations contained in the Columbia Basin Trust's letter dated January 3, 2006 to you. Council therefore requests that the US Army Corps of Engineers, US Department of the Interior, National Oceanic and Atmospheric Association, and US Fish and Wildlife Service not proceed with implementing the proposed operational changes at Libby or Hungry Horse Dams until these issues are addressed.

Sincerely,

Michelle Ferraro  
Deputy Corporate Administrator

cc: Neil Muth, Chief Executive Officer, Columbia Basin Trust  
Kindy Gosal, Manager Water Initiatives, Columbia Basin Trust

**COMMENTER**

**RESPONSES**

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**FERRARO,  
MICHELLE**  
City of Trail, BC

1. Thank you. Please refer to our responses to the Columbia Basin Trust letter of January 3, 2006.

December 28, 2005  
6647 Kootenai River Road  
Libby, MT 59923

Evan Lewis  
U.S. Army Corps of Engineers

This is a request that the USACE does not allow the extreme fluctuation of water flow in the Kootenai that have taken place the last 2 years.

You have negatively affected the economy of Lincoln County and Libby; an area already hard pressed economically by adverse environmental rulings.

You have adversely affected the fish populations in the dam's tailwaters.

You are doing this supposedly, for salmon and sturgeon on theory only. There is no theory to the bad effect you have had on Libby, and will compound if you continue.

As a waterfront land owner, on the Kootenai River, we strongly request that you do not use these extreme flows on the Kootenai.

*James E. Gamble*  
James E. Gamble

*Virginia Gamble*  
Virginia Gamble

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**COMMENTER**

**RESPONSES**

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**GAMBLE, JAMES  
AND VIRGINIA**

1. Fluctuations in Libby Dam outflow and Kootenai River flows over the last several years have generally been within the historical range as defined by the capacity of the powerhouse, which has not changed since the addition of the fifth turbine in 1984. And, at least since the mid-1990s, the seasonality and duration of high flows has been generally consistent (high flows in winter for power production; high flows in spring and summer for fish flow augmentation.) The rate of river fluctuation resulting from changes in dam discharges (i.e. ramping rates) has also not changed since 2000. The comment may be referring to the high discharges experienced in 2002 during a spill event at the dam resulting from flood control operations. Discharges of this magnitude are rare under all of the alternatives, but would tend to occur slightly more often under the preferred alternative. As noted in the EIS (Section 3.5.2), "Water management tools such as water supply forecasting methodology are continually being improved, which may allow water managers to better anticipate and avoid forced spills in real time."

The selection of alternative LVB as the preferred alternative allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol for LVB. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for the attributes. While release of flows up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.



# Corporation of the Village of New Denver

P.O. Box 40, New Denver, BC V0G 1S0 (250) 358-2316 FAX (250) 358-7251

*C. Gordon, CMC, Administrator*

*G. Wright, Mayor*

January 11, 2006

*rec'd 1/17/06*

Mr. Evan Lewis  
Environmental Resources Section  
Seattle District  
US Army Corps of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755  
USA

Dear Mr. Lewis:

Re: Upper Columbia Alternative Flood Control (VARQ) and Fish Operation -  
Draft Environmental Impact Statement - Columbia Basin Trust Response

The Council of the Village of New Denver reviewed the Columbia Basin Trust's response to your request for comments on the Draft Environmental Impact Statement (DEIS) for implementation of Alternative Flood Control and Fish Operations at Libby and Hungry Horse Dams in Montana.

1 Council wishes to advise that it supports the conclusions and recommendations outlined in the Columbia Basin Trust's January 3, 2006 correspondence to you, and therefore requests that the United States Army Corps of Engineers, US Department of the Interior, National Oceanic and Atmospheric Association, and US Fish and Wildlife Service not proceed with implementing the proposed operational changes at Libby or Hungry Horse Dams on either an interim or long-term basis until these issues are addressed.

Yours truly,

Carol Gordon, CMC  
Administrator

cc Neil Muth, Chief Executive Officer, Columbia Basin Trust  
Garry Merkel, Vice Chair Columbia Basin Trust  
Kindy Gosal, Manager Water Initiatives Columbia Basin Trust  
Ron Miles, Interim President, CBT Energy Inc  
Bruce Duncan, Columbia Power Corporation  
Kelvin Ketchum, BC Hydro

Shelley Murphy, Ministry of Energy Mines and Petroleum Resources  
Les MacLaren, Crown Agency Secretariat  
David Grace, Ministry of Environment  
Jim Mattison, BC Comptroller of Water Rights  
Dan Millar, Environment Canada  
David Burpee, Natural Resources Canada  
Marvin Wodinsky, Canadian Consulate Seattle  
Fred Fortier, Canadian Intertribal Fisheries Commission  
Melinda Eden, Chair, Northwest Power and Conservation Council  
Bob Lohn, Regional Administrator, National Oceanic and Atmospheric Administration  
Steve Oliver, Vice President Generation Supply, Bonneville Power Administration  
Jim Barton, Chief, Columbia Basin Water Management, U.S. Army Corps of Engineers  
John Dooley, Mayor of Nelson  
Dieter Bogs, Mayor of Trail  
Joe Snopek, Mayor of Creston  
Laurence Chernoff, Mayor of Castlegar  
Ross Priest, Mayor of Cranbrook  
Randal Macnair, Mayor of Fernie  
Greg Deck, Chair, Regional District of East Kootenay  
Gary Wright, Chair, Regional District of Central Kootenay  
Gordon DeRosa, Chair, Regional District of Kootenay Boundary  
Dean Eastman, Nicks Island Dyking District

Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses

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**COMMENTER**

**RESPONSES**

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**GORDON, CAROL**

Village of New  
Denver

1. Comment noted. Please refer to the Response to Columbia Basin Trust Comments.

Kindy Gosal, Columbia Basin Trust  
103 Gowles Island, Golden, BC  
Draft EIS Public Meeting, Nov 28, 2005, Nelson, BC  
(transcript)

Kindy Gosal, Columbia Basin Trust, little log cabin on the bridge of the river of the Kicking Horse there in Golden, 103 Gowles (phonetic) Island I believe it's called.

So, the Columbia Basin Trust, the main reason we're here is we have -- we are interested in trying to increase the influence that the people of this basin have on processes, water management processes and decision making that affect them. I think it could be said very clearly for VARQ and operations at Libby in general that they touch a lot of people in this basin. We are upstream and downstream of Libby, and so Canada has a very keen and great interest in Libby operations. And I'll talk a little more about that later.

1

Specifically about VARQ, we've heard about some of the power -- potential power impacts, so I'm not going to touch on that. And our power partners at CPC will certainly be providing some input on the DEIS, on the potential power impacts, and we need to see what those impacts are and we need some compensation on those impacts. And there's also a number of people with some fisheries background, and I'm no expert in fisheries. Gary Birch is here, and there maybe there's benefits to fisheries in Canada from VARQ that we can see from this report. There may be some others and these need to be recognized.

2

I'm going to touch on some of those other impacts that Kelvin alluded to in this basin and what people have told our organization they're concerned about. And let's start with Koocanusa. And at the Koocanusa, people understand that there might be with VARQ a potential for earlier refill, a potential, if it's just VARQ by itself, for a longer, higher level on the lake in the summer, which is good for the people in Koocanusa. However, the concern the people in Koocanusa have is when you put the fish flows on top of that and they have that 20-foot drop in the summer, very clearly those folks, and we'll try to get them involved here, have indicated an issue with those fish flows and the impacts to recreation on Koocanusa. And there's others and I hope other folks in the Koocanusa area can participate and give you some other impacts. And we've tried to, in the work that we've done in doing stakeholder summaries, et cetera, to give you some of those impacts.

3

Moving down the system to Creston Valley, and we see from VARQ there may be some potential impacts in Creston Valley. We want to go on record as saying we have some trepidation with what might happen in the Creston Valley area for the dyking districts and some of the potential erosion because of fluctuating water levels and potential seepage from higher water levels during the time the dyking districts have crops in the fields and the impacts to their dyking infrastructure.

4

The Creston Valley Wildlife Management Area, I'm disappointed they're not here tonight, certainly they have articulated over and over their concerns to you with respect to the Creston Valley Wildlife Management Area, and some of the additional costs, some impacts to the infrastructure and additional pumping costs that might be associated with that.

5

The Lower Kootenai Band has articulated some concerns to their dyking district that they have and their lands on the Kootenay River area. As you go up the lake, we have Gary Wright earlier speak about some concerns there, and Garry also from the recreational side articulated some concerns over lower fluctuation levels and also potential flooding issues on the Kootenay Lake. Those are real concerns for Canadians. We have concerns, we're not sure what's going to happen, and it leaves some trepidation as I said before, but and we talked about the power side and potential compensation for the power side. If there's impacts in Canada for potential benefits to the United States from Libby, we need to look at what those impacts are and we also need to address compensation issues. If we're adversely being affected by a change in operations to benefit values in the United States, we might get some benefits here, and there's some negative impacts in Canada, we need to look at compensation issues for those impacts, that needs to be dealt with, it's an outstanding issue in this process.

6

I want to talk a little bit about the consultation. And this is a consultative process and I appreciate you coming up here and I appreciate the work you've done to date. I mean, 2002 I think we first met and started to talk about this. It's been a few years and we've had a few conversations, but we must be having a cultural difference in communication and consultation because from our perspective as an organization in the Columbia Basin and our perspective in working with the people here, I can clearly tell you the individuals that I know are -- do not consider the consultation as happening in Canada to be adequate to our standards, and that might be some kind of difference in the way we do business. But I really feel that we could have done a better job in engaging the people here that are touched by this river, and they're going to be potentially impacted in trying to get them involved and having conversation with them. I appreciate you coming to Nelson and talking to the DEIS but Baynes Lake is a long way from here and those guys have a voice and they need to be heard and they're not going to travel to Nelson and they might not even fill out one of these forms, but you have an obligation as an entity that's about to change the flows on the Kootenay River and to change the way of life potentially for some of these people to talk to them effectively. You have a responsibility if you're going to operate the system to go and engage these folks and to find out what their issues are and to do it in an effective and meaningful manner. And I would hope that in the future, we've talked about trying to do this and have a review that we find out a better mechanism to start to involve Canadians, the organizations and the agencies, but the people of this basin and how we operate Libby Dam. I think there needs to be a process that recognizes that Libby operations are critical to our way of life in the Kootenay River Watershed and the Columbia Basin in general. You know, it's a critical watershed, Libby is a facility that manages that, so any of these major decisions on the operations of Libby should include meaningful consultation and should include Canadian values in that. And we need to work on that process, because I don't think it's there yet, I don't think we have effective meaningful dialogues across the border that we can sit down and say, 'Phone us, that's fine.' We need to be able to say this is how it's done. We understand the process, the players, we've got the phone numbers, know how it's going to happen, if there's an issue then we know how it's going to happen, that process needs to be built. Okay. Thank you very much for this opportunity.

JEFF LAUFLE: Thank you.

KINDY GOSAL: Thank you very much for that. It's another whole point. Our room here isn't full, but that doesn't necessarily mean that our folks don't have something that they want to say to you, and that I don't want to harp on the negatives. Humans always harp on the negatives. There's maybe some potential benefits that we need to talk about too. The timing of the meeting, the timing of the report coming out, in terms of engaging the people and getting a proper indication what the impacts here in Canada are, negative and positive, it's not going to work out. You don't do consultative processes around here when the snows are coming and try to expect people all over the basin to come, 'cause they don't. We got our butts kicked on that. So, I'm telling you, it's a lesson we learned, okay. The timing of the meeting, in November this time of year in Nelson, you're not going to get a proper participation from other folks in the basin. This meeting here with the amount of people here is not an indication of how dearly all of these issues are held by the people of the basin, absolutely not. I tell you, when I meet with these folks over coffee, these are big issues. They are not able to make it to these types of meetings. I don't want to get into our details of the critique of our consultation process, but we made the offer early on in the process to assist you in designing a consultative process that might work, and it didn't happen. But if we need to do this again, we need to work on that part of it. And we would be willing, as an organization, to help you. We can be a player in that, facilitate in that dialogue. And B.C. Hydro, man, they know how to do it, they do it all the time. Thank you.

**COMMENTER**

**RESPONSES**

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**GOSAL, KINDY**

Columbia Basin Trust

Draft EIS Public Meeting, Nov 28, 2005, Nelson, BC (transcript)

1. We recognize the concerns about power impacts in Canada and have added additional information received in response to the DEIS into the Final EIS and have addressed them in responses to written comments from BC Hydro and others.

2. Comment noted. In general, the EIS analysis shows that VARQ FC alternatives would help Lake Koocanusa achieve higher reservoir levels during the summer, with corresponding benefits to reservoir recreation. The EIS also documents that the incremental effect of the fish flows tends to decrease the degree of benefit to reservoir recreation from the VARQ FC alternatives. There have been recommendations to change summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows that extend into September with a 10 foot draft limit in most years. However, the current summer flow augmentation operations from the Libby and Hungry Horse projects are being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon.

3. Comment noted. The discussion of potential socioeconomic impacts has been supplemented with qualitative comparisons noting that impacts to agriculture in the Creston, BC, area would be similar in nature and trend to the agricultural impacts noted in the Idaho portion of the Kootenai Valley. Due to our reliance on information available for transboundary impacts (see Response to Comment 5, below), we do not have any information on the magnitude of the potential agricultural impacts in the Creston, BC, area. Differences in effects on levee integrity are not anticipated (see Section 3.3.1) since evidence suggests that levee stability is affected primarily by ramping rates (i.e. how fast river/lake levels rise and fall) and ramping rates would not vary among the alternatives.

4. Comment noted. Information from the Creston Valley Wildlife Management Area about potential impacts is incorporated in the EIS, primarily for evaluations of Sensitive, Threatened, and Endangered Species (Section 3.3.4) and Wildlife (Section 3.3.5).

5. For transboundary impacts (i.e. those in Canada), we rely on existing information or information supplied by affected stakeholders for impact evaluation. Consistent with the White House Council on Environmental Quality advisory memorandum on transboundary effects, dated July 1, 1997, concerning mitigation, we believe that the EIS has appropriately identified potential mitigation. Compensation issues are matters appropriately addressed through established Columbia River Treaty processes.

6. We have coordinated with Canadian technical representatives, and provided modeling data for use by those interests in helping us assess impacts for the EIS. We appreciate and have incorporated all information received from the Columbia Basin Trust and other Canadian organizations. The Corps and Reclamation will continue active involvement with interagency and transboundary groups, such as the International Kootenai/y Ecosystem Recovery Team, the Transboundary Gas Group, and the Kootenai River White Sturgeon Recovery Team. Additionally, Corps water managers will maintain regular contact with their counterparts in British Columbia for real-time operation of the Columbia River system. We note your comment concerning potential improvements in coordination with the general public in Canada and, in the context of routine Libby Dam operations, are investigating ways to invite public participation and education on Libby Dam issues of potential interest in Canada.



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Suite 300  
Castlegar, BC  
V1N 1G1

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Tel: (250) 365-6633  
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Email: [cbt@cbt.org](mailto:cbt@cbt.org)  
[www.cbt.org](http://www.cbt.org)

January 3rd, 2006

Mr. Evan Lewis  
Environmental Resources Section  
Seattle District  
US Army Corps of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755  
USA

**Re. Upper Columbia Alternative Flood Control (VARQ) and Fish Operation – Draft Environmental Impact Statement**

Dear Mr. Lewis,

This letter, in addition to the presentation made at the November 28<sup>th</sup> public meeting in Nelson BC, provides the Columbia Basin Trust's response to your request for comments on the Draft Environmental Impact Statement (DEIS) for implementation of Alternative Flood Control and Fish Operations at Libby and Hungry Horse Dams in Montana. The proponents for this proposed operational change are the US Department of the Interior, the Bureau of Reclamation - Pacific Northwest Region, and the US Department of Defense, Army Corps of Engineers – Seattle District.

This letter was prepared within the context of the Columbia Basin Trust's Water Initiatives Program mandates to play a leadership role in increasing the influence of the residents of this region in major water management decisions that affect them.

The CBT's participation in this process was undertaken with the objective of ensuring that individuals and groups from our region with a broad range of interests and values have the opportunity to participate and are given adequate consideration in the EIS process. Canada is situated both upstream and downstream of Libby Dam, and thus the people of our region have a vested interest in hydrosystem operations at Libby Dam.

The implementation of the VARQ flood control operations strategy at Libby and Hungry Horse Dams, along with the associated Fish Operations have the potential for both positive and negative impacts in the British Columbia portions of the Pend O'Rielle and Kootenay River drainages.



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The CBT itself has not undertaken a technical evaluation of these potential impacts of the proposed operations. It is our contention that the proponents of the operational change have the obligation to undertake such work on both sides of the international border. We have, in cooperation with other Canadian agencies, prepared a “Stakeholders Summary of Preferred and Potential Negative Reservoir Levels and River Stages on the Canadian Kootenay River System”. This report was forwarded to you in September of 2004 and is attached to this letter. The Stakeholders Summary identifies a range of interests in the Canadian portion of the Kootenay River System and provides information on the preferred and detrimental river stage or reservoir elevation levels for each interest group. The report represents some initial work from which the proponents of this operational change can then initiate technical studies to examine how the proposed operational change would either positively or negatively impact the Canadian interest.

The DEIS notes a number of potential impacts in Canada on recreation/tourism opportunities, cultural resources, private property, key ecological areas, endangered and threatened species, power generation and the agriculture industry. The CBT has noted in the past that we would rely upon our Canadian partners to provide further detail on these impacts.

As noted at the public meeting in Nelson, there is concern over the extent to which the negative impacts may outweigh the positive impacts in Canada. The degree of the impacts is not clearly understood at this time, and related compensation/mitigation measures will need to be put into place by the proponents of the proposed operations prior to implementation.

The CBT would also like to comment on the following specific issues:

### **Consultation Process**

The consultation process that was carried out by the USACE and Bureau of Reclamation, which lead up to the development of the DEIS, did not involve many of the Canadian parties that may potentially be impacted by the proposed alternatives. The consultation process did not meet what we would describe as the minimum level of public consultation that is expected, considering the potential impacts.

More specifically:

- The USACE and Bureau of Reclamation held only two public meeting in Canada (Creston, BC, January 2002, and Nelson, BC, November 2005). The CBT had made direct requests to the USACE and Bureau of Reclamation that a series of public consultation meetings be held in British Columbia in a variety of locations where potential impacts may occur due to the proposed alternatives.
- The distribution of the pertinent information on this initiative was limited, and the time frame for comment on the EIS document was extremely short (five weeks over the Christmas holiday season). Given the limited distribution and the technical nature of the document, and the short time frame for response, most community groups from Canada were not able to participate in the consultation process. There are very few of the possible impacted stakeholders in Canada who have the technical capacity to review the information that was put forward. The CBT believes the USACE and Bureau of Reclamation have a responsibility to make information more readily accessible, and at a

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less technical level, whereby a wide variety of groups can effectively engage in this process.

- It is our contention that the people in the Canadian portion of the Basin did not have adequate access to information, nor opportunity consult with the proponents of this operation. The full range and extent of the impacts in Canada have not been adequately addressed.

### **Information gaps**

The DEIS does not represent a comprehensive list of potential social, economic and environmental impacts (negative or positive) that may occur in Canada as a result of implementing the proposed alternatives. Of the potential impacts that are listed, there is very little analysis done on the level of impact, or costs associated with the impacts.

Before proceeding further, we would request that the USACE and the Bureau of Reclamation provide further detail on both the range and degree of potential impacts in Canada as a result of the proposed alternatives.

The following is a *preliminary* list of areas of concern that have been identified by residents in our region. More research and analysis is required by the proponents of the operation to determine additional areas of concern and the degree of potential impacts. As well, other Canadian agencies will provide more information on hydro power, fisheries, and First Nations' cultural concerns:

#### **Koocanusa**

- **Recreation** - While there may be some positive benefits for recreation on the Koocanusa Reservoir from higher elevation levels in the spring, these benefits may be out weighed by the summer salmon draft that draws the reservoir down 20 feet in August, which coincides with the peak recreation season.
- **Fish** - Additional concerns have been voiced over fish entrainment issues related to increased flows from Libby Dam.
- **First Nations** – Impacts on heritage sites and cultural resources are unknown and need to be addressed.

#### **Canadian border to Kootenay Lake including Creston Valley**

- **Agriculture/dykes** – Increased flows and fluctuation may have detrimental affect on the agriculture industry and dyking infrastructure in the Creston Valley area. These impacts include crop loss, damage to dyking infrastructure and increased pumping costs. More research is required to address the impact of the proposed operations on these interests.
- **Wildlife** – The Creston Valley Wildlife Management Area and the Creston Valley is home to a variety of listed and endangered species. As with the Dyking infrastructure, the proposed operations may have an impact on these wildlife resources. More research is required to address the impact of the proposed operations on these interests.
- **First Nations** – Impacts on heritage sites and cultural resources are unknown and need to be addressed.

#### **Kootenay Lake**

- **Private property** – The DEIS indicates a higher probability for increased lake levels with the proposed operations which could impact property and infrastructure around Kootenay Lake. More research is required to address the impact of the proposed operations on these interests.

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➤ **Recreation** – as with private property the recreational opportunities and infrastructure around Kootenay Lake may be impacted by the proposed operations. More research is required to address the impact of the proposed operations on these interests.

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➤ **First Nations** – Impacts on heritage sites and cultural resources are unknown and need to be addressed.

### **Reduction in downstream flood protection**

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Based on the information provided by the DEIS, and the analysis undertaken by BC Hydro, we would note there is concern in Canada about the expected reduction in flood protection downstream of Libby as a result of implementing VARQ. This issue is of major concern to a number of interests in the Creston Valley and Kootenay Lake area, as well as downstream areas in the Kootenay Canal and Trail area. Further analysis by the proponents is required to assess potential flood risk in Canada and associated compensation issues.

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### **Hydroelectric generation in Canada**

CBT's comments in this area supplement the information provided by BC Hydro and CBT's joint venture partner Columbia Power Corporation. These organizations have identified that the proposed operational changes at Libby and Hungry Horse will have an adverse impact in power generation at Canadian Hydroelectric projects. BC Hydro estimates a combined annual loss of \$10- \$14 million as a result of the proposed operational changes at Libby and Hungry Horse. Further analysis on this issue is required and the associated compensation issues need to be addressed.

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### **Compensation/mitigation and liability as a result of impacts**

The DEIS notes some potential mitigation issues and identifies some "Unavoidable Adverse Affects". However, this may not be a comprehensive list, and the DEIS does not adequately address compensation issues that would arise as a result of the potential impacts in Canada. Given that this process is being directed by the NOAA Fisheries and USFWS under the US Endangered Species Act (ESA), and being implemented by the USACE and Bureau of Reclamation, all of these agencies will be held accountable by the people of this region for any negative impacts in our area.

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### **Lack of monitoring strategy and formal review period**

While the DEIS makes reference to adaptive management practices, the DEIS does not have a monitoring strategy associated with it, nor a formal review period. Both of these elements are necessary in order to measure and assess whether the proposed actions have their desired affects or whether other negative impacts that were not originally anticipated occur and need to be addressed. A monitoring strategy and review period are also necessary to ensure that any refinements to the operational plan can be effectively implemented.

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### **Biological benefit of flow augmentation for salmon**

It is our understanding that one of the main objectives of implementing the Alternative Flood Control Operation is to provide flow augmentation to listed stocks of salmon for downstream migration. However, there is considerable scientific debate over the relative merits of such water management practices. It is also our understanding that other hydrosystem management alternatives have been proposed to assist in the recovery of listed species in the United States that

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may have less impact on Canadian interests. The relative biological merit of this proposed alternative compared to others needs to be addressed.

**Need for a formalized mechanism to incorporate Canadian interests into hydropower operations decisions at Libby Dam.**

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Given that Canada is both upstream and downstream of Libby Dam, and that Canadian interests are directly impacted by operations at Libby, there is a need to create a formal and structured mechanism to include Canadian interests in the management of Libby operations. We would encourage the USACE and other US agencies to meet with the CBT and other Canadian agencies to design this mechanism at the earliest possible time.

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In summary, the CBT understands that there are a number of significant social, economic and environmental impacts (both positive and negative) in Canada that may potentially result from the implementation of the proposed Alternative Flood Control Operations. However, the concerns/issues of the residents and community groups in our region have not been adequately gathered or addressed. We request that the United States Army Corps of Engineers, US Department of the Interior, National Oceanic and Atmospheric Association, and US Fish and Wildlife Service not proceed with implementing the proposed operational changes at Libby or Hungry Horse on either an interim or a long-term basis until:

- There is an appropriate consultation process carried out in the Canadian portion of the affected areas that is inclusive of all groups and communities, and information is provided in a less technical nature.
- The range and degree of potential impacts in Canada are more completely assessed.
- The appropriate mitigation and/or compensation issues related to the impacts in the Canadian area are addressed.

The USACE can expect to receive more information and comment related to the DEIS and the proposed alternatives past the deadline for submission of comments. We request that the USACE accept these comments, and incorporate them into the next steps of this process.

Yours truly,



Kindy Gosal  
Manager Water Initiatives  
Columbia Basin Trust

cc:

Neil Muth, Chief Executive Officer, Columbia Basin Trust  
Garry Merkel, Vice Chair Columbia Basin Trust  
Ron Miles, Interim President, CBT Energy Inc  
Bruce Duncan, Columbia Power Corporation  
Kelvin Ketchum, BC Hydro

Shelley Murphy, Ministry of Energy Mines and Petroleum Resources  
Les MacLaren, Crown Agency Secretariat  
David Grace, Ministry of Environment  
Jim Mattison, BC Comptroller of Water Rights  
Dan Millar, Environment Canada  
David Burpee, Natural Resources Canada  
Marvin Wodinsky, Canadian Consulate Seattle  
Fred Fortier, Canadian Intertribal Fisheries Commission  
Melinda Eden, Chair, Northwest Power and Conservation Council  
Bob Lohn, Regional Administrator, National Oceanic and Atmospheric Administration  
Steve Oliver, Vice President Generation Supply, Bonneville Power Administration  
Jim Barton, Chief, Columbia Basin Water Management , U.S. Army Corps of Engineers  
John Dooley, Mayor of Nelson  
Dieter Bogs, Mayor of Trail  
Joe Snopek, Mayor of Creston  
Laurence Chernoff, Mayor of Castlegar  
Ross Priest, Mayor of Cranbrook  
Randal Macnair, Mayor of Fernie  
Greg Deck, Chair, Regional District of East Kootenay  
Gary Wright, Chair, Regional District of Central Kootenay  
Gordon DeRosa, Chair, Regional District of Kootenay Boundary  
Dean Eastman, Nicks Island Dyking District

**COMMENTER**

**RESPONSES**

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**GOSAL, KINDY**

Columbia Basin Trust

1. NEPA requires agencies to include analysis of reasonably foreseeable transboundary effects of proposed actions using reasonably available information. Accordingly, the EIS evaluates impacts in Canada based on information provided by Canadian stakeholders. Information received from Canadian interests on impacts of alternatives has been incorporated into the EIS; examples include effects on power generation and benefits, flood control, recreation, wildlife, and aquatic organisms. We will continue to coordinate with Canadian interests on operation of Libby and Hungry Horse dams. Consistent with the White House Council on Environmental Quality advisory memorandum on transboundary effects, dated July 1, 1997, concerning mitigation, we believe that the EIS has appropriately identified potential mitigation. Compensation issues are matters appropriately addressed through established Columbia River Treaty processes.

2. As noted, there were two public meetings in Canada concerning the development of the EIS in January, 2002 and November 2005. In the interim we coordinated with Canadian technical representatives, and provided modeling data for use by those interests in helping us assess impacts for the EIS. We appreciate and have incorporated all information received from the Columbia Basin Trust and other Canadian organizations and governmental agencies. The Corps and Reclamation will continue active involvement with interagency and transboundary groups, such as the International Kootenai/y Ecosystem Recovery Team, the Transboundary Gas Group, and the Kootenai River White Sturgeon Recovery Team. Additionally, Corps water managers will continue coordination with their counterparts in British Columbia for real-time operation of the Columbia River system.

We note your comment concerning potential improvements in coordination with the general public in Canada and, in the context of routine Libby Dam operations, are investigating ways to invite public participation and education on Libby Dam issues of potential interest in Canada. In addition, we recognize there are complex technical analyses contained in the EIS. The EIS provides information on the potential impacts of the various alternatives through both detailed and summary discussions. The EIS content and organization was developed in an attempt to convey complex topics to a wide audience with a range of technical expertise. We agree that in addition to providing technical information, the concepts discussed in the EIS should be understandable by the general public as well.

3. To the best extent of our knowledge, we have incorporated information obtained on impacts of alternatives in Canada. We provided hydroregulation data to Canadian technical representatives and other interested parties as soon as those data were available, and solicited responses regarding anticipated impacts to Canadian resources. Information received from Canadian interests concerning impacts associated with the alternatives has been incorporated into the EIS; examples include effects on power generation, flood control, recreation, wildlife, and aquatic organisms.

4. Section 3.3.7 has been revised to acknowledge that at 20 feet below full pool, much of the Canadian part of Lake Kooconusa has been drafted to river level.

5. A discussion of fish entrainment by Libby Dam has been added to Sections 3.2.4 and 3.3.3.

6. The VARQ alternatives would have the general effect of maximizing reservoir refill in Lake Kooconusa. This would maintain higher water levels in Canada during the summer and serve to protect heritage sites and cultural resources from vandalism by inundation. Language in the EIS reflects our level of understanding of this topic.

7. See Response to Comment 3.

**COMMENTER**

**RESPONSES**

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**GOSAL, KINDY**

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8. See Response to Comment 3. Section 3.3.4 discusses the potential impacts on northern leopard frogs, a protected species under the Canadian Species at Risk Act. Section 3.3.5 discusses the potential impacts of the different alternatives on wildlife resources at the Creston Valley Wildlife Management Area (CVWMA). These discussions are based on information obtained during coordination with representatives of the CVWMA and disclose impacts as reported.

9. See Response to Comment 3. The Environmental Consequences text in Sec. 3.3.9 addresses what is understood about likely effects of the alternatives, based on available information.

10. See Response to Comment 3. Based on information provided by BC Hydro, Section 3.3.12 discusses estimated damages to Kootenay Lake shoreline development. This discussion discloses the potential impacts to shoreline properties as reported.

11. See Response to Comment 3. Based on information received from BC Hydro, the Columbia Basin Trust, and other Canadian organizations, we analyzed impacts to recreation on Kootenay Lake in the EIS.

12. See Response to Comment 3. The following text has been added concerning Kootenay Lake affected environment for cultural resources in Sec. 3.2.10: "Archaeological resources in the West Kootenay region are not well documented but known to exist (Borden 1956). Early Period isolated archaeological finds are reported in southeastern British Columbia and help to define five early cultural traditions that existed there (Carlson 1996). These suggest several millennia of aboriginal land use, but archaeological sites with stratified deposits are very rare and few have been investigated. The archaeological culture history of the Kootenay Lake region has not yet been established."

13. We believe that downstream flood protection is maintained under LVB, the preferred alternative, with real-time management of Libby Dam, given the objective is to operate to flood stage of 1764 feet at Bonners Ferry, Idaho. Regarding flood protection in Canada, we have incorporated the most recent stage-damage information for the West Arm of Kootenay Lake provided by BC Hydro. A change in operations pertaining to elevation 1755 flood stage at Kootenay Lake is subject to coordination between the U.S. and Canadian Entities pursuant to the Columbia River Treaty. We have not received stage-damage information for Canadian locations other than for the West Arm of Kootenay Lake.

14. Based on information received from BC Hydro, the Final EIS includes an analysis of impacts to Canadian hydropower generation in terms of changes in generation and economic return.

15. Please see Response to Comment 1.

16. In addition to this EIS process, we have ongoing technical transboundary coordination processes. River flows and lake levels are routinely monitored and reported. We coordinate with our counterparts in British Columbia concerning biological and ecosystem issues, as part of the Transboundary Gas Group, the Kootenai River White Sturgeon Recovery Team and the International Kootenai Ecosystem Restoration Team. We welcome any information that may be offered by specialists or experts in Canada. The Corps will be ensuring biological and physical monitoring is in place to assess the response to implementation of LVB.

17. We recognize that there is an ongoing debate concerning the biological benefit of summer flow augmentation from storage dams to benefit salmon and steelhead in the lower Columbia. Our analysis of benefit from flow augmentation for anadromous fish was based on ability to meet flow objectives designated by NOAA at Priest Rapids and McNary dams for smolt

**COMMENTER**

**RESPONSES**

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outmigration per the 2004 Biological Opinion and the biological basis contained in that document.

18. The Corps operates Libby Dam in a manner consistent with its obligations under the Columbia River Treaty (Treaty), the Libby Coordination Agreement, and the 1938 Order on Kootenay Lake operation from the International Joint Commission (IJC). Members of the staff of the U.S. Entity have begun technical discussions of VARQ with members of the staff of the Canadian Entity at Columbia River Treaty Operating Committee meetings and additional discussions are planned. It is expected that the Libby VARQ will also be the subject of consultations between the U.S. Entity and the Canadian Entity under the terms of the Libby Coordination Agreement and the provisions of the Columbia River Treaty. Consistent with our obligations under NEPA, the Corps has relied upon and considered information supplied by Canadian interests concerning transboundary impacts associated with this VARQ FC EIS. We have coordinated with Canadian technical representatives, and provided modeling data for use by those interests in helping us assess impacts for the EIS. We appreciate and have incorporated all information received from the Columbia Basin Trust and other Canadian organizations.

19. Comment noted. Please see Response to Comment 18.

December 27, 2005

U.S. Army Corps of Engineers, Seattle District  
Attn: Mr. Evan Lewis, PM-PL-ER  
P.O. Box 3755, Seattle, WA 98124-3755

Dear Evan,

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The Center for Biological Diversity provides the following comments on the Upper Columbia Alternative Flood Control and Fish Operations at Libby Dam and Hungry Horse Dam Draft Environmental Impact Statement (“DEIS”) produced by the Army Corps of Engineers (the “Corps”) and the Bureau of Reclamation. The DEIS analyzes the environmental impacts of implementation of alternative flood control strategies and flow augmentation to benefit the Kootenai River White Sturgeon, as well as other threatened and endangered fish. The DEIS contains four alternatives, including standard flood control, variable flood control up to powerhouse capacity (VARQ), standard flood control with flow augmentation 10 kcfs above capacity, and variable flood control with flow augmentation 10 kcfs above capacity. Of these, VARQ limited to current powerhouse capacity is the Corps preferred alternative. This alternative and the Corps continuing failure to take action to provide flows over powerhouse capacity for the Kootenai River White Sturgeon jeopardize the continued existence of the Sturgeon in violation of the Endangered Species Act and the National Environmental Policy Act (NEPA). The preferred alternative also fails to meet the stated purpose and need of the DEIS. The Corps has failed to adequately consider alternatives that would avoid these violations and save the Kootenai River White Sturgeon.

### **The Kootenai River White Sturgeon**

The Kootenai River White Sturgeon is a distinct population of the Columbia River White Sturgeon that has been isolated from other sturgeon populations for at least 12,000 years. The Sturgeon is a long-lived species (over 70 years) that can weigh as much as 350 pounds and reach lengths over eight feet. Historically, Sturgeon spawned over clean gravels in the Kootenai River during high spring flows with eggs adhering to the gravel, allowing fry to hatch in a well-oxygenated environment with cover from predators. Since completion of Libby Dam in 1974, Sturgeon have still moved up the Kootenai River to spawn, but spawning no longer occurs over gravel. Instead, Sturgeon have spawned in a reach of the river downstream of the Highway 95 bridge in Bonner’s Ferry, Idaho characterized by fine sediments, resulting in near complete reproductive failure for over 30 years. This failure is resulting in dramatic population declines. The DEIS, for example, noted that “Kootenai River white sturgeon numbers are estimated at fewer than 500, down from numbers of 5,000 to 6,000 in the 1980s, and are declining at approximately 9 percent per year.” Without immediate action, the Sturgeon faces imminent extinction.

Initially, it was unclear why Libby Dam resulted in Sturgeon spawning over unsuitable substrates, instead of the suitable gravels that occur just upstream at and above the

Highway 95 Bridge. The U.S. Fish and Wildlife Service (FWS) identified two possible explanations for spawning occurring over unsuitable substrates since the construction of Libby Dam:

“(1) The current spawning site selection is a predominant behavioral response to changed river velocities and depths from the operations of Libby Dam, which may be causing the sturgeon to spawn primarily at new sites below the confluence with Deep Creek, about 3 river miles below Bonners Ferry, with unsuitable sandy riverbed substrates; or (2) the substrate at historic spawning sites has been altered by the operations of Libby Dam that have greatly reduced peak flood flows and associated stream energy. In turn, this may be causing rocky substrate, otherwise suitable for egg incubation and sac fry development, to be covered with sand” (FWS 2000).

Recent evidence, however, clearly points to Sturgeon spawning in new and unsuitable locations since completion of Libby Dam. First, Barton (2004) found that substrates near Shorty’s Island, where extensive spawning occurs, are similar to those prior to completion of Libby Dam, stating:

“The substrate composition near Shorty Island, 234 kilometers below Libby Dam, a notable white sturgeon spawning reach, is predominantly sand and is similar to that which existed prior to closure of Libby Dam.”

This indicates that where Sturgeon currently spawn likely never supported suitable habitat. Second, Paragamian and Kruse (2001) determined that Sturgeon spawn further upstream in response to increased flows, suggesting that Sturgeon key to environmental variables, such as flow, rather than simply spawning at the same locations annually. In 1974 when Sturgeon last successfully reproduced, flows in the Kootenai River were 40,000 cfs at Bonner’s Ferry and the river elevation reached 1765.5 feet (FWS 2000). Since 1974, flows have consistently been lower than these levels, providing a likely explanation for the Sturgeon’s failure to spawn over suitable habitat. Both a biological opinion produced by the U.S. Fish and Wildlife Service (FWS) and a recovery plan for the Sturgeon have recommended increasing flows to match those observed in 1974.

**The Corps failure to provide greater flows jeopardizes the continued existence of the Sturgeon in violation of the Endangered Species Act and NEPA**

In 2000, the U.S. Fish and Wildlife Service (FWS) concluded in a biological opinion (“BiOp”) that operation of Libby Dam is likely to jeopardize the continued existence of the Kootenai River White Sturgeon, adding that:

“this conclusion is based upon the probability that, under the proposed action, continuing high levels of mortality of fertilized eggs, and the resulting lack of significant recruitment to the only extant population of Kootenai River white sturgeon, will continue” (FWS 2000).

To alleviate jeopardy, FWS required the Corps to take a series of actions to increase the release capacity of Libby Dam by 10,000 cfs in two increments (FWS 2000). The first of these increments was to be provided by either spilling 5,000 cfs over the spillway if this could be done without increasing total dissolved gas above Montana water quality standards, or by installing an additional turbine, which was supposed to be accomplished by 2004. FWS (2000) states:

“If, by December 30, 2001, it is determined that at least 5,000 cfs cannot be routinely passed over the spillway within the total dissolved gas criteria of 110 %, or VARQ or some other flood control/storage procedure has not been adopted, the action agencies shall immediately begin preparation of NEPA documentation and seek funding for installation of one turbine or spillway flow deflectors, which are to be operational by spring 2004.”

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The Corps has determined that the spillway cannot be used, yet has failed to initiate NEPA or seek funding to install an additional turbine, even though 2004 has come and gone and the date for installation of the second turbine (2007) is rapidly approaching. Significantly, the preferred alternative of VARQ in the current DEIS is specifically designed to store more water allowing release of the larger flows that would be possible were it for the additional turbines. Without the additional turbines and the increased flow, implementation of VARQ as currently proposed will do little to benefit the Sturgeon, making the alternative essentially meaningless. The Corps failure to take action to install additional turbines and provide greater flows clearly jeopardizes the continued existence of the Kootenai River White Sturgeon in violation of the Endangered Species Act.

This failure also violates NEPA, which requires the Corps to select an alternative that meets their legal requirements as an agency. According to the Council on Environmental Quality (CEQ)’s “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations,” the agency’s preferred alternative “is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors.” In selecting an alternative that jeopardizes the continued existence of the Sturgeon in violation of the Endangered Species Act, the Corps are failing to meet a statutory requirement in violation of NEPA.

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**The preferred alternative does not meet the stated purpose and need of the project because it will not provide flows that avoid jeopardizing the continued existence of the Sturgeon**

The Corps’ failure to select an alternative that avoids jeopardizing the continued existence of the Sturgeon fails to meet the stated purpose and need of the project in the DEIS, which is to provide flows for the Kootenai River White Sturgeon and other threatened or endangered fish. Although the preferred alternative does allow for storage of water and some flow augmentation, this augmentation has proven ineffective at inducing the Sturgeon to spawn over suitable habitat. Since 1992, flows have been

augmented as proposed in the current DEIS. These flows, however, have been unsuccessful likely because they have not reached those observed in 1974. The DEIS largely admits this, stating:

“To date, annual monitoring by researchers has observed sturgeon eggs from spawning events, but has not found meaningful correlation between the sturgeon flow augmentation that has been provided since 1992 and substantial recruitment of juvenile sturgeon (*e.g.*, the observed eggs are not producing larvae that survive).” Pg 66

In further support of the fact that flows provided under the preferred alternative, the DEIS states that

“Primarily because the peak dam discharge rate and volume of sturgeon flow augmentation are the same, the effects of LV1 [preferred alternative] on white sturgeon would be similar to those under LS1 [no action alternative].” Pg 132.

Regarding the no action alternative (LS1), the DEIS concludes:

“In the absence of other non-operational actions, such flow augmentation is unlikely to result in substantial benefits to sturgeon, as evidenced by the lack of observed wild sturgeon production in the past decade of sturgeon flow augmentation. Sturgeon would continue to spawn in areas of unsuitable sandy substrate between the Route 95 bridge and Shorty’s Island.” Pg 132.

The Corps never explains why they have chosen an alternative that won’t meet the stated purpose and need of providing flows that benefit the Sturgeon, beyond the fact that according to them “a reliable method has not been identified that would provide the additional flows within existing TDG standards, or within existing power system limitations concerning power markets and transmission facilities.” This assertion is not supported by any information or analysis in the DEIS and is flatly contradicted by a feasibility study conducted by the Bonneville Power Administration (BPA).

**The DEIS fails to adequately consider alternatives that actually would result in recovery of the sturgeon**

The DEIS includes an alternative for increasing flows by 10,000 cfs with VARQ, as required by FWS’ BiOp. However, the Corps failed to adequately consider this alternative based on their assertion that it can’t be implemented:

“To date, a reliable method has not been identified that would provide the additional flows within existing TDG standards, or within existing power system limitations concerning power markets and transmission facilities. Impacts on TDG and any other impacts specific to any mechanism for providing additional flows are not addressed in this EIS because the mechanism for achieving the additional 10 kcfs discharge capacity is unknown. If a decision were made to

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pursue additional flow capacity in the future, a study of potential mechanisms could be evaluated as part of future dam modification alternatives.” Pg. 21

The Corps admission that the environmental impacts of installing additional turbines will not be considered is a plain admission that they have not fully considered this alternative in violation of NEPA, which requires full consideration of all alternatives. Likewise, since FWS’ BiOp clearly stated that the Corps was to conduct NEPA analysis to install additional turbines, their statement indicates they are ignoring their responsibilities under the Endangered Species Act.

Moreover, the Corps never explains why they did not consider the impacts of installing additional turbines and their claim that there is “no reliable method” for installing additional turbines is not supported by the evidence. Indeed, a feasibility study conducted by the Bonneville Power Administration determined that there were a number of ways to address problems with power system limitations associated with installation of one or two turbines (Appendix A).. The report concludes:

“The technical studies show one of three solutions is required to solve both the thermal overload and the undamped oscillation problem to eliminate the operational generation cap at Libby and Hungry Horse. The three solutions are:

Solution 1:

Drop Hungry Horse generation for outages of about 20 new facilities (may be beyond capability of new RAS controller)

Insure that Noxon generation is dropped for Avista 230 kV line outages (cost and feasibility is unknown due to foreign utility).

Total cost \$10 M plus unknown Avista cost.

Solution 2:

Upgrade the following lines:

- Upgrade the Columbia Falls-Flathead 230 kV line to 100 Deg. C operation
- Reconductor the Columbia Falls-Kalispell-Kerr 115 kV line
- Reconductor the Sand Creek-Laclede-Priest River 115 kV line

Install a 150 MVAR SVC or STATCOM in the Flathead Valley Area

Total cost \$35 Million

Solution 3:

Construct about 200 miles of new 230 kV transmission line from Columbia Falls to Hot Springs and from Libby to Bell.

Total cost about \$150 M.”

These findings directly contradict the Corps’ conclusion that there is no reliable means to install additional turbines. To the contrary, they show that there are relatively cost-effective solutions. Given the precarious status of the Sturgeon and the Endangered

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Species Act's emphasis on protecting species from extinction regardless of the cost<sup>1</sup>, there is no explanation, nor was any provided, for why the Corps did not more fully consider installation of additional turbines to allow greater flows for the Sturgeon when the BPA had determined that there are feasible solutions.

As one last point, BPA's feasibility report assumes that the Columbia Falls Aluminum Plant will not be drawing power, yet this plant is up and running and has currently requested rates that will allow them to keep operating. Some of the problems of over-generation could likely be solved by funneling power to the Plant at a reduced rate, preserving both jobs and the Sturgeon (Appendix B).

**Implementing VARQ with flow augmentation 10,000 cfs is the environmentally preferable alternative**

In the record of decision, the Corps is required to identify the environmentally preferable alternative and explain why this alternative has not been selected (CEQ 1981). Statements in the DEIS demonstrate that VARQ with flow augmentation 10,000 cfs above powerhouse capacity. The DEIS, for example, states:

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“Similar to LS2, peak dam discharges under LV2 would be substantially higher than either LS1 or LV1, thereby supporting the highest peak flows of any alternative in the portions of the river where sturgeon spawn and bringing peak flows closer to unregulated conditions when sturgeon successfully reproduced.”  
Pg 132

And:

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<sup>1</sup> The purposes of the ESA are reflected in the principles set forth by the Supreme Court in TVA v. Hill. While district courts sitting in equity have sound discretion to issue injunctive relief, in TVA v. Hill the Supreme Court found that the traditional balancing of hardships does not apply where there are violations of the ESA. Rather, the "language, history and structure" of the ESA "indicates beyond doubt that Congress intended endangered species to be afforded the highest of priorities," *id.* at 174 (emphasis added), and for "the balance of hardships and the public interest [to] tip heavily in favor of endangered species." Sierra Club v. Marsh, 816 F.2d 1376, 1383 (9th Cir. 1987) (citing TVA v. Hill at 187-88). Congress therefore "explicitly removed the federal judiciary's traditional equitable authority to balance competing interests in deciding whether to issue injunctions under the ESA." TVA at 193-95; accord, Weinberger v. Romero-Barcelo, 465 U.S. 305, 313-14 (1982) ("[i]n TVA v. Hill, we held that Congress had foreclosed the exercise of the usual discretion possessed by a court of equity" and there, "we thought that '[o]ne would be hard pressed to find a statutory provision whose terms were any plainer' than that before us") (citations omitted); Amoco Production Co. v. Village of Gambell, 480 U.S. 531, 543 n.9 (1987) (the ESA "contains a flat ban on destruction of critical habitats of endangered species").

“LV2 would likely produce the highest incremental increases in cumulative benefits to the aquatic ecosystem due to higher flow peaks and durations during the spring freshet, and the greatest flexibility to manage river flows during the spring freshet for synergistic ecosystem benefits.” Pg. 177

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Based on the lack of support for the Corps assertion that there are no reliable methods for adding turbines to allow greater flow augmentation, there is no explanation for not choosing the environmentally preferred alternative of increasing flows by 10,000 cfs. This point is highlighted by the fact that the Corps is legally bound to not jeopardize the Sturgeon, which as specified by FWS’ BiOp could be accomplished by selecting VARQ with flow augmentation 10,000 cfs over powerhouse capacity. Thus, any discretion the Corps has to select a preferred alternative different than VARQ with flow augmentation 10,000 cfs above powerhouse capacity has been negated in this case.

**The preferred alternative has unacceptable impacts on other Kootenai River fish and the ecosystem as a whole.**

The preferred alternative maintains a hydrograph in the Kootenai River that is substantially different from natural with highly attenuated spring flood events and warmer waters during the winter. These continued unnatural conditions result in harm to the Sturgeon as well as other fish species and the ecosystem as a whole. In particular, operation of Libby Dam is expected to continue to contribute to continued declines and potential extinction of the Kootenai River Burbot:

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“To the extent that Libby Dam contributed to the observed declines in burbot populations, dam operations and river conditions that are achievable under any of the alternatives may still prove inadequate, despite the best efforts of the Corps and other regional interests, to restore habitat conditions sufficient to recover and sustain burbot. For example, although the VARQ FC alternatives would tend to provide lower river flows during the the latter portion (January) of burbot migration and spawning period, the positive effects that lower flows have on burbot migration and spawning could be influenced by the higher-than-desired water temperature in the river as a result of the thermal storage in Lake Koocanusa, which is a consequence of Libby Dam construction.” Pg 180

FWS recently determined that Kootenai River Burbot don’t qualify as a distinct population segment under the Endangered Species Act and thus can’t receive its protection (Federal Register: March 11, 2003, V. 68, No. 47). In the absence of Endangered Species Act protections, the Corps appears to be abandoning serious effort to conserve the Burbot and resigning themselves to its extinction in the Kootenai River. This lack of concern for the Burbot, which once supported an abundant fishery in the river and Kootenai Lake, and the ecosystem as a whole is typical of the Corps lack of concern for our Nation’s natural heritage and the functioning and sustainability of its ecosystems.

## Conclusions

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The Corps has selected a preferred alternative that jeopardizes the continued existence of the Kootenai River White Sturgeon, ignores the requirements of FWS' BiOp, and fails to consider the needs of other Kootenai River fish and the ecosystem as a whole. The Corps has also failed to fully consider alternatives that provide greater protection to the Kootenai River White Sturgeon and the ecosystem as a whole by arbitrarily and capriciously claiming that reliable methods are not available to increase flows above powerhouse capacity. The preferred alternative and the DEIS itself thus violate both the Endangered Species Act and NEPA.

Sincerely,



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## References:

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Paragamian, V.L., and G. Kruse. 2001. Kootenai River white sturgeon spawning migration behavior and a predictive model. *North American Journal of Fisheries Management* 21 (1): 10-21.

## Appendix A, Transmission Feasibility Report:

### **Transmission Feasibility Study For the Integration of Libby Units 6 and 7, Mitigation of Libby and Hungry Horse Generator Dropping, and Elimination of the Libby and Hungry Horse Generation Cap**

This report does not contain Critical Energy Infrastructure Information (CEII) as defined in FERC Order 630-A. The original technical report which describes specific line outages is retained at BPA for documentation and was modified to create this report.

#### 1.0 Introduction

The transmission system in Western Montana was designed to integrate Federal generation based on river operations from decades ago as well as to serve local load including the smelter at Columbia Falls. When Libby was built in 1975 existing lines were looped into the new station. Essentially no new lines were added. In the last decade hydro operations have changed significantly, reliability criteria are applied more stringently, Avista loads in the Lewiston area have increased and Columbia Falls operation has been curtailed. Grid operations evolved to maintain reliability and cost-effectively respond to the changes, including generation shedding for certain transmission system conditions.

The 2000 Biological Opinion included a spill test at Libby dam to determine if the Libby Project could be operated at high outflows without violating water standards (dissolved gasses). The purpose of the increased outflows is to induce spawning of White Sturgeon in the Kootenay River below Libby Dam. Following the spill test, BPA Environment Fish & Wildlife (EF&W) requested a transmission study of the next level of mitigation — addition of the 6<sup>th</sup> unit. This feasibility study is in response to that request and will:

1. *Assess the impact on the existing system (system in late 2006) of the proposed 6<sup>th</sup> generator addition at Libby Dam and determine the transmission system reinforcements that are required to integrate the 6<sup>th</sup> unit (section 3.1).*  
Subsequent to presentation of the results for this request on Oct 16, 2003 to the Joint Operating Committee, BPAT was asked to: *Assess the system requirement to integrate two additional turbines at Libby (units 6 and 7) allowing an equal reduction of Hungry Horse generation (section 3.2).*

In addition, the study will also:

2. *Determine the cost and feasibility of reinforcing the system so that changes in Hungry Horse generation are not required to maintain the transmission stability of the Flathead Valley (section 3.3), and*

3. *Determine the cost and feasibility of reinforcing the transmission system so that changes in Libby generation (generator dropping) are not required to maintain voltage and transmission stability in the area (section 3.3).*
4. *Determine the cost and feasibility of removing the combined summer generation limit of 900 MW at Hungry Horse and Libby so the full 1025 MW generation could be utilized to meet Montana State water quality standards. This is in response to the Oct 16,2003 letter request to BPA Transmission (BPAT) from the US Bureau of Reclamation (section 3.4).*

A solution summary for the requests is shown on Table 1, report section 4.

## **2.0 Study Assumptions**

The time period assumed for these studies is immediately after the completion of the BPA Grand Coulee-Bell Transmission Project and the Avista system reinforcements in late 2006. This joint BPA/Avista Project will add capacity on the West of Hatwai (WOH) cutplane and improve Avista load service. In addition to the Grand Coulee-Bell 500 kV line, BPA will also add series capacitors on the 500 kV system at Bell and Dworshak to improve the performance of the 230 kV and 500 kV systems between Montana and the Spokane area.

The remaining key assumptions and system conditions, which govern the study results in section 3.1, 3.2 and 3.4, are:

- West of Hatwai (WOH) flows are at maximum, approximately 4200 MW.
- Light summer, off peak load conditions
- Columbia Falls Aluminum smelter not operating
- High generation on the Western Montana Hydro (WMH: Libby, Hungry Horse, Noxon and Cabinet Gorge), approximately 1679 MW total with 944 MW combined generation at Libby (5 units) and Hungry Horse (4 units)(section 3.4 assumes 1025 MW generation combined at Libby and Hungry Horse)
- Six units at Libby generating 120 MW each (6 units in section 3.1, 7 units in section 3.2, otherwise 5 units at 120 MW)

## **3.0 Study results and analysis**

The following section addresses the first request “*Assess the impact on the existing system (system in late 2006) of the proposed 6<sup>th</sup> generator addition at Libby Dam and determine the transmission system reinforcements that are required to integrate the 6<sup>th</sup> unit.*” The year 2006 was chosen because the Grand Coulee-Bell 500 kV Project and planned Avista facilities will be completed. Please note that the present combined Libby and Hungry Horse generation limit is 950 MW in the winter and 900 MW in the summer. This study assumed the limit could be raised to at least 944 MW in the summer due to the system reinforcements represented in the study (Grand Coulee-Bell Project completed).

### **3.1 Base condition with 6 units at Libby**

#### **Thermal analysis**

With the Libby 6<sup>th</sup> unit operating under the conditions above and no system outages, the Columbia Falls-Flathead 230 kV line and the Libby-Noxon 230 kV line are at 99% of their thermal rating. The Libby-Bonnors Ferry 115 kV line is at 96% of its thermal rating. This case results in a near perfect balance of power flow in the area where all major lines are within 1 to 4 % of overloading. Any change in flow from Montana or a change in load level will cause one or more of the lines above to overload without an outage.

#### **Reactive analysis**

With the 6<sup>th</sup> unit added at Libby, system losses increase by 27 MW and 254 MVAR. The high level of additional reactive losses (reactive losses increase in magnitude by more than twice the 120 MW of added real power) indicates a very stressed transmission system. Without the addition of new transmission or reactive sources (beyond the reactive supplied by the 6<sup>th</sup> unit), system reactive margins will decrease. Although a more thorough reactive analysis was not completed, it is apparent that additional generator dropping (GD) will be required for some outages and there will be new outages that will require GD. This will result in much more frequent GD at Libby and possibly at Hungry Horse.

#### **3.1.1 Outage Analysis with 6 units at Libby**

The following outages were found to require GD at Libby (varies for each outage) to reduce the flow of power on facilities to within their capability. These outages do not currently require GD on the existing system. (Modified for CEII)

- One 115 kV line outage
- Four 230 kV line outages
- Two 230 kV bus outages
- Two double contingency 230 kV line outages

Additional GD at Libby (4 units instead of 3) is required for an outage of: (Modified for CEII)

- Two 230 kV line outages

The following line upgrades or reconductoring would mitigate thermal line overloads for a wider range of system operation and eliminate the additional GD requirements above:

- Reconductor the Libby-Bonnors Ferry 115 kV line (approximately 60 miles)
- Reconductor the Sandpoint-Priest River 115 kV line (approximately 17 miles)
- Upgrade the Libby-Noxon 230 kV line to 100 deg C operation
- Upgrade the Columbia Falls-Flathead 230 kV line to 100 deg C operation

Although the above line upgrades solve the thermal overload problems, unacceptable system damping still needs to be addressed. There are three ways to provide improved damping on this system.

1. Drop generation at Libby and possible Hungry Horse to reduce the excess power flow out of the area (with this solution the above line upgrades would not be required). However, voltage control and reactive margins in the area may still be a problem at peak generation.
2. Install a Flexible AC Transmission System (FACTS) device such as a Static Var Compensator (SVC) or a Static Compensator (STATCOM) that can quickly vary reactive output to aid the generator exciter system to dampen system oscillations. This solution would require the line upgrades above and would greatly improve the voltage control and reactive margins in the area as discussed in the “Reactive Analysis” above.
3. Build additional transmission from the Libby area to the Spokane area. The proposed BPA Libby-Bonnars Ferry 230 kV line project (G-15) and the Sandpoint-Bell 230 kV line project (G-20) result in an additional 230 kV line from Libby to Bell (Spokane). This line should improve transient stability of the system to the extent that no new GD at Libby will be required. The addition of these projects would also reduce some of the existing GD at Libby and provide for future load growth in the Sandpoint, Idaho area. Since the proposal for projects G-15 and G-20 were developed, a number of other potential alternatives have been identified. These other alternatives have not been explored further.

### **3.1.2 Potential Solution Summary**

#### **Solution 1**

Drop additional generation at Libby and possible Hungry Horse to stabilize the system.

Total cost: \$4 Million

#### **Solution 2**

Construct an SVC or STATCOM in the Flathead Valley area to dampen system oscillations. Cost about \$20 Million

Upgrade the following lines,

- Reconductor the Libby-Bonnars Ferry 115 kV line (approximately 60 miles)
- Reconductor the Sandpoint-Priest River 115 kV line (approximately 17 miles)
- Upgrade the Libby-Noxon 230 kV line to 100 deg C operation
- Upgrade the Columbia Falls-Flathead 230 kV line to 100 deg C operation

Total cost: \$60 Million

#### **Solution 3**

Complete the BPA G-15 and G-20 projects. This creates a new 230 kV transmission line between Libby and Bell.

Total cost: \$195 Million

Note: cost includes land and overhead

#### **Solution 4**

Reduce Hungry Horse generation equal to the output of the Libby unit 6.

Total cost: Lost revenue from the reduction of Hungry Horse generation

### **3.2 Base conditions with seven units at Libby with equal generation reduction (240 MW) at Hungry Horse**

#### **Thermal Analysis**

With seven units at Libby (840 MW) and Hungry Horse generation reduced equal to two units at Libby (104 MW output), the transmission loading with all lines in service reduces out of the Flathead Valley and increases out of the Libby area when compared to 5 units at Libby (600 MW) and Hungry Horse at 344 MW. No lines are near overloading and the heaviest loading is showing on the Libby-Noxon 230 kV line (88%).

#### **Outage Analysis with seven units at Libby**

When compared to five units at Libby and Hungry Horse generating 344 MW, the generator dropping requirements at Libby reduce about 200 MW for the following line outages: (Modified for CEII).

- Two 230 kV line outages

Generator dropping requirements increase at Libby by about 100 MW for the following outages: (Modified for CEII).

- One 115 kV line outage
- Two 230 kV line outages
- Two 230 kV bus outages
- Two double contingency 230 kV line outages

#### **3.2.1 Potential Solution Summary**

Moving 240 MW of generation from Hungry Horse to Libby results in shifting system loading from lines in the Flathead Valley area to lines serving the Libby area and can be accomplished through increased generator dropping at Libby. This will require changes to both the Flathead Valley Remedial Action Schemes (RAS) and Western Montana RAS. This could easily be accomplished within the time it takes to complete the addition of two units at Libby. The cost would be small (changes to the RAS), about \$4 Million.

**3.3** The following section addresses the second and third request: *“Determine the cost and feasibility of reinforcing the system so that changes in Hungry Horse generation are not required to maintain the transmission stability of the Flathead Valley.”* Also, *“Determine the cost and feasibility of reinforcing the transmission system so that changes in Libby generation (generator dropping) are not required to maintain voltage and transmission stability in the area.”*

The Libby area transmission and the Flathead Valley area transmission are not separate; the transmission for one area also supports the transmission in the other area during outages and the generation level in one area affects the transient stability performance in the other area. As such, the response to the second request (Hungry Horse Area) cannot be independent of the third request (Libby Area). In addition, Libby GD provides nearly

1000 MW of transfer capability across the WOH cutplane by reducing flow and stabilizing the grid following a 500 kV line outage to insure acceptable transient stability performance.

### **3.3.1 Reliability Criteria discussion**

#### **Local area**

The WECC Reliability Criteria requires that all load be served for the loss of two lines on the same right of way (ROW). However, WECC allows an exception to this rule (allows load loss) if the affect of the outage is confined to the “local area”. The BPA Reliability Criteria defines the Flathead Area and the Libby areas as “secondary grid” which allows the same performance as the WECC criteria exception for a “local area”. What all this means is that BPA can allow either of these area to separate from the grid (essentially a blackout to the area) and meet the WECC and BPA criteria. However, BPA has historically applied remedial action schemes ((RAS), generator dropping at Libby, minimum generation levels at Hungry Horse and direct load tripping at Columbia Falls Aluminum Co. (CFAC)) to protect the areas because these measures are viewed as low cost insurance against a local blackout. Presently with CFAC shut down, the Flathead Valley area is vulnerable to loss of the two critical 230 kV lines because there is no generator dropping capability at Hungry Horse. Additional transmission in the area could remove the need for some or all of the RAS but the cost is high compared to continued reliance on RAS.

#### **Main grid**

The WECC reliability criteria allow dropping of generation to improve system performance and increase transfer capabilities. In order to have maximum effect, the generation must be dropped as soon as possible following the outage. Typically, generation is dropped within about 1/6 second following the outage. Ramping of generation is not an effective alternative to high speed dropping.

### **3.3.2 Critical Outages**

#### **Local area**

The electrical performance of the Libby area and the Flathead Valley area is constrained by three distinct outages of two 230 kV lines each. These outages and their general effect are: (Modified for CEII).

1. Three double contingency 230 kV line outages

#### **Main Grid**

The critical main grid outages that presently utilize Libby GD are: (Modified for CEII)

1. Single contingency outage of any one of five, 500 kV lines
2. Double contingency outages of any one of three sets of 500 kV lines

On completion of the Grand Coulee-Bell 500 kV line project, the following facility outages will also require Libby GD: (Modified for CEI).

1. Single contingency outage of any one the following: One 230 kV bus outage, two 230 kV line outages and one 500 kV line outage.

It should be noted that although Libby is expected to be dropped for more system outages, the arming of Libby GD will occur at higher system loading and will be more closely related to the hydro generation level in the area instead of West of Hatwai flow.

### **3.3.3 Solutions to mitigate Libby GD for Local Area RAS and Main Grid RAS**

The following will discuss in depth each of the critical outages. Solutions for each outage, or group of outages will be identified to meet the objective to eliminate generator dropping and ramping. This discussion is based on previous studies and engineering experience; no new technical studies were performed.

### **3.3.4 Local Area Transmission and RAS (Modified for CEII)**

#### **One double contingency 230 kV line outage**

The most severe condition for this outage is when Libby and Hungry Horse are at maximum generation of 900 MW (Libby at 600 MW, Hungry Horse at 300 MW) and the area load is minimum of about 145 MW (CFAC off line). The remaining transmission consists of two 115 kV lines with a capacity of about 190 MVA which results in about 565 MW that must leave the area on new transmission

In order to eliminate the need to change Libby generation (generator dropping or ramping) for this outages, enough new transmission needs to be added so that at least two 230 kV circuits remain in service at Libby for the worst outage of two 230 kV lines connected to Libby (reliability criteria requirement). Two 230 kV lines is the minimum required transmission to operate Libby at 600 MW since each line is rated at 500 MW or less. This results in a minimum of four 230 kV lines connected to Libby.

The Libby-Bell 230 kV transmission project could be modified so that the southern portion of that project (between Sandpoint and Bell) is constructed all double circuit

(would require 75 miles of double circuit construction instead of single circuit construction). The end result would be a double circuit 230 kV line from Libby to Bell. This would also require all tapped 115 kV loads on this system to convert to 230 kV operation. The existing plan assumes that one side of the 230 kV double circuit line would be operated at 115 kV to serve tapped loads along the line and would not require the entire project to be constructed double circuit.

If CFAC load were fully on, only one new 230 kV transmission line would be required because the maximum area export would be about 215 MW.

The cost for these reinforcements is:

Libby-Bell 230 kV line, 135 miles double circuit	\$210 M
Two breakers at Libby and station development	\$2 M
Two breakers at Bell and station development	\$2 M
<u>Conversion of 115 kV tapped loads to 230 kV</u>	<u>\$25 M</u>
Total cost	\$264 Million

Note: Cost includes land and overhead

**One double contingency 230 kV line outage**

The most severe condition is when Libby is generating maximum (600 MW). The transmission solution for the previous outage would be the same for this outage. Two additional 230 kV lines are needed, Libby-Bell 230 kV double circuit line, to reliably transmit the 595 Mw from the Libby project.

**3.3.5 Main Grid Transmission and RAS (Modified for CEII)**

Libby generator dropping presently provides about 1000 MW of transfer capability to the existing system when the WMH is peaking. Libby GD is utilized for outages on the main grid system (500 kV). The Libby GD is only needed for some of these outages when the Western Montana Hydro (WMH) is above 500 MW and other outages when the WMH is over 1300 MW. In order to eliminate the Libby GD for main grid outages, an additional 500 kV line from Hot Springs to Noxon to Bell would be needed. Essentially, the Taft-Bell 500 kV line needs a backup line to carry power when it is out. This line would replace the existing BPA Hot Springs-Noxon-Bell 230 kV line so there is no additional land required. The plan would include a 500/230 kV transformer at Noxon because the only remaining BPA line at Noxon, the Libby-Noxon 230 kV line, requires a connection to the BPA system so the Avista system does not overload. The plan is based on previous studies but did not consider the addition of the local area transmission discussed above

which could have a measurable, positive effect. The addition of the Libby-Bell 230 kV double circuit line would not be enough transmission to mitigate the need for another 500 kV east-west line from Hot Springs to Noxon to Bell.

Without Libby GD, the proposed 4200 MW West of Hatwai path rating with the new Bell-Coulee line would be reduced by at least 1000 MW without further system reinforcement. Reducing the path rating would not meet current BPA transmission obligations, which includes increased capability for Western Montana hydro. In other words, without GD, the region would not receive the full benefits for the \$243 million investment in Coulee-Bell and associated projects.

There are no good alternatives to the loss of Libby GD on this path except additional transmission or replacement GD at Boundary or Hungry Horse. This plan assumes the added transmission would mitigate the need for Libby GD for outages on this path.

The cost for this reinforcement is:

Hot Springs-Noxon-Bell 500 kV line, single circuit 164 miles	\$213M
500/230 kV transformer at Noxon	\$18 M
4- 500 kV terminals and station development	\$12 M
Total cost:	\$243 M

Note: Cost includes overhead and land

### **3.3.6 Solutions to mitigate Hungry Horse Separation (Modified for CEII)**

#### **One double contingency 230 kV line outage**

The transmission in the Flathead Valley area is faced with many extremes of operation because it has both significant generation and load (local area load with or without CFAC load). For the purpose of this report, only the extreme condition of export is important. Also, since Hungry Horse generation is not presently dropped via a Remedial Action Scheme, this report will address what is required to prevent the separation of the area from the rest of the system with possible load rejection at Hungry Horse (blackout of the area). This affects Hungry Horse operation similarly to GD via the RAS.

Extreme export from the area occurs when the area load is minimum (140 MW) and the Hungry Horse generation is at maximum (344 MW) which results in a maximum export of about 204 MW with CFAC shut down. Area export is measured as the sum of the flow on the Libby-Conkelley and Flathead-Hot Springs 230 kV lines and the Elmo-Kerr 115 kV line. In the case with area export of 204 MW, the remaining 115 kV line from Columbia Falls to Kerr is not capable of maintaining service to the area if the two 230 kV

lines are forced out. Even if the Columbia Falls-Kerr 115 kV line were reconductored to a much higher capacity, stability studies show it would not be sufficient to maintain Hungry Horse stability so it was not an option to further assess. The end result, when Hungry Horse is generating at 344 MW, is that one new 230 kV line would provide acceptable area service for the two 230 kV line outage with CFAC off line. If CFAC is at full load, no additional transmission is needed.

The new 230 kV line from the Flathead Valley was deemed to connect to Hot Springs substation because it ties to the 500 kV system which has additional capacity and is the least expensive line alternative. Studies were not performed to refine the facilities needed however a rough estimate of facility cost can be made.

The cost for these reinforcements is:

With CFAC shut down:

Columbia Falls-Hot springs 230 kV line, 70 miles	\$56 M
2 breaker positions, one at Columbia Falls, one at Hot Springs	\$4 M
Total cost:	\$60 M

Note: Includes land and overhead

**3.4** The following section is the BPAT response to the Oct 16,2003 letter request from the US bureau of Reclamation. *Determine the cost and feasibility of removing the combined generation limit of 900 MW at Hungry Horse and Libby so the full 1025 MW generation could be utilized meet Montana State water quality standards.* Please note the combined Libby and Hungry Horse generation limit is presently 900 MW in the summer and 950 MW in the winter. The study assumed the limit will be raised to at least 944 MW in the summer due to the system reinforcements represented in 2006 (Grand Coulee-Bell Project completed). This study assessed the system requirements to raise the combined generation level from 944 MW to 1025 MW.

#### **3.4.1 Thermal Analysis results**

The Columbia Falls-Flathead 230 kV line overloads for an outage of the following facilities: (Modified for CEII)

- Four 230 kV line outages and one 230/500 kV transformer outage. or
- Four double contingency 230 kV line, or
- Two 230 kV bus outages, or
- Two Avista 230 kV line if Avista does not drop generation at Noxon.

The Columbia Falls-Flathead 230 kV line would need to be upgraded to 100 Deg. C operation or additional GD is required at Libby and / or Hungry Horse.

The Columbia Falls-Kalispell-Kerr 115 kV line overloads for an outage of the following facilities: (Modified for CEII)

Two 230 kV line outages, or  
One 230 kV bus outage

The Columbia Falls-Kalispell-Kerr 115 kV line would need to be reconductored or additional GD is required at Libby and / or Hungry Horse. Please note that the reconductoring of this line is only one of several line upgrades required to allow higher Libby generation.

The Sand Creek-Laclede-Priest River 115 kV line overloads for an outage of the following facilities:

One Avista 230 kV line if Avista does not drop generation at Noxon.

The Sand Creek-Laclede-Priest River 115 kV line would need to be reconductored or additional GD is required at Libby and / or Hungry Horse.

### **3.4.2 Transient Stability Analysis Results**

The following outages in the Flathead Valley area cause undamped oscillations in hydro generators, including Libby and Hungry Horse, in the western Montana area:

Two 230 kV line outages, or  
One 230 kV bus outage

GD at Hungry Horse (this could be added to the existing Flathead Valley remedial Action Scheme) or additional 230 kV transmission between Columbia Falls and either Bell or Hot Springs would eliminate the undamped oscillations. An alternate means of damping the system oscillations would be to install an SVC or STATCOM in the Flathead Valley.

The following outages in the Bell area cause undamped oscillations in hydro generators in the western Montana area:

Nine 230 kV line outages, or  
Two transformer outages, or  
Four Avista 230 kV line outages

Additional 230 kV transmission between Columbia Falls and either Bell or Hot Springs would eliminate the undamped oscillations or include all of the outages noted above in the Western Montana Remedial Action Scheme which would drop additional Libby and Hungry Horse generation. However, it may not be practical to add this large number of additional outages to the scheme because of the limitations of the RAS hardware. An alternate means of damping the system oscillations would be to install a 150 MVAR SVC or STATCOM in the Flathead Valley.

### **3.4.3 Potential Solution Summary**

The technical studies show one of three solutions is required to solve both the thermal overload and the undamped oscillation problem to eliminate the operational generation cap at Libby and Hungry Horse. The three solutions are:

#### **Solution 1:**

Drop Hungry Horse generation for outages of about 20 new facilities (may be beyond capability of new RAS controller)

Insure that Noxon generation is dropped for Avista 230 kV line outages (cost and feasibility is unknown due to foreign utility).

Total cost \$10 M plus unknown Avista cost.

#### **Solution 2:**

Upgrade the following lines:

- Upgrade the Columbia Falls-Flathead 230 kV line to 100 Deg. C operation
- Reconductor the Columbia Falls-Kalispell-Kerr 115 kV line
- Reconductor the Sand Creek-Laclede-Priest River 115 kV line

Install a 150 MVAR SVC or STATCOM in the Flathead Valley Area

Total cost \$35 Million

#### **Solution 3:**

Construct about 200 miles of new 230 kV transmission line from Columbia Falls to Hot Springs and from Libby to Bell.

Total cost about \$150 M.

#### 4.0 Solution Summary Table

**Table 1. Summary of Transmission Solutions for Generation Changes at Libby and Hungry Horse**

	Solution	Concern				
		A	B	C	D	E
		A Operate with 6 units at Libby, no reduction at HH	Operate with 7 units at Libby with HH reduced	Eliminate gen dropping at Libby	Eliminate separation at Hungry Horse	Increase max gen cap at Libby and HH
Solution 1	Drop additional generation at Libby and Possibly Hungry Horse	x	x			
	Cost \$4 Million					
Solution 2	Install a 150 MVAR SVC or STATCOM at Columbia Falls and upgrade lines	x				
	Cost \$60 Million					
Solution 3	Build G-15 and G20 projects, Libby-Bell 230 kv line	x				
	Cost \$195 Million					
Solution 4	Reduce HH generation by about 120 MW (max gen about 200 MW)	x				
	Cost Lost generation at HH					
Solution 5	Build Libby-Bell double circuit 230 kV line and Hot Springs-Noxon-Bell 500 kV line and associated facilities			x		
	Cost \$507 Million					
Solution 6	Build Columbia Falls-Hot Springs No 2 230 kV line and Hot Springs-Noxon-Bell 500 kV line and associated facilities				x	
	Cost \$303 Million					
Solution 7	Drop HH generation for about 20 new outages, (RAS additions)					x
	Cost \$10 Million					
Solution 8	Install a 150 MVAR SVC or STATCOM at Columbia Falls and upgrade lines					x
	Cost \$35 Million					
Solution 9	Construct Columbia Falls-Hot Springs and Libby-Bell single circuit 230 kv lines.					x
	Cost \$150 Million					

**Notes**

1. HH = Hungry Horse
2. For each request, any of the solutions in that column can meet the need. For example, to operate with six units at Libby, either solution 1, 2, 3, or 4 will meet the need. Also, note that solution 1 addresses both requests A and B.
3. Solutions 2 and 8 use the same SVC or STATCOM. However, the line upgrades are different

#### 4. See report for full details

Bonneville Power Administration Transmission Business Line 12/22/03

## 5.0 Transmission Access

This section applies to all four areas of concern addressed in this report. The last concern, removing the combined 900 MW generation limit, is used as an example.

TBL plans the grid to meet transmission obligations in accordance with its Open Access Transmission Tariff (OATT). Based on the recently completed public process on Available Transfer Capability (ATC), BPA's Power Business Line has reserved 900 MW of transmission capacity across the West of Hatwai (WOH) cutplane. Any changes must be made in accordance with the OATT and the procedures outlined in the ATC posting.

The Grand Coulee-Bell 500 kV Transmission Project will add significant capacity across the WOH cutplane but that capacity will be consumed by the excess Federal generation that was stranded east of the WOH cutplane when the smelters at Columbia Falls and Spokane were closed (about 800 MW) plus any additional allocation to Avista for their project investment. If there is available capacity after the Project is completed, that capacity will be made available for existing transmission requests that are still pending. It is likely that new transmission will be necessary to fully service the pending requests. Also, a PBL request for an additional 135 MW from Libby and Hungry Horse will require fresh studies that are based on the system and conditions that exist when the transmission request reaches the top of the transmission queue. Therefore, the study results reported herein are at best an estimate to service a 135 MW request if it was at the top of the transmission queue today. Realistically, TBL could not service a request for 135 MW, considering the many requests pending, until roughly the 2010 time period.

Study report prepared in December 2003 by:

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[Greenwald cmt – pg 23]

## Appendix B, Article on Columbia Falls Aluminum Plant:



CFAC future may hinge on BPA plan

*Posted: Thursday, Dec 01, 2005 - 11:41:50 pm PST*

By WILLIAM L. SPENCE

The Daily Inter Lake

**The future of Columbia Falls Aluminum Co. could be determined in the next few months, when the Bonneville Power Administration lays out its plan for future wholesale power rates.**

Five CFAC employees were among the dozen or so people who attended a formal rate hearing in Kalispell on Wednesday.

The hearing, which was hosted by Bonneville, gave people an opportunity to comment on the agency's proposed rate structure for the three-year period that begins Oct. 1, 2006.

CFAC officials urged Bonneville to keep its rates as low as possible, saying that could be the difference between the 50-year-old smelter continuing to operate and being forced to close its doors.

"Over the last five years, we've worked to make CFAC the most efficient plant of its kind in the world," said Terry Smith, president of the Aluminum Workers Trades Council, which represents the company's union workers.

"But power costs are out of our control," Smith said. "We're asking you to set your rates at a level that would enable us to keep the fate of the aluminum industry in Montana in our own hands."

Bonneville sells electricity produced from a series of federal dams in the Columbia River drainage. It's major customers include public power utilities, such as Flathead Electric Cooperative. Whenever possible, it sells surplus power on the free market

Historically, the agency has also provided a substantial amount of low-cost power to major industries, helping the Pacific Northwest become a mecca for primary aluminum smelters.

That began to change in 1995, when Bonneville — in response to increased demand from its public utility customers — reduced sales to the aluminum industry by about a third. By 2001, when the last set of supply contracts were written, the amount of low-cost power available for industrial customers was cut in half, to about 1,500 megawatts.

Since then, all but three of the region's 10 aluminum smelters have gone out of business. Some plants have been dismantled. CFAC is currently running at 20 percent of capacity.

“We're struggling,” said Jim Stromberg, CFAC's chief power supply officer, during Wednesday's hearing. “We offer 150 of the best-paying jobs in the Flathead. We'd like to continue providing those jobs — and increase production — but our ability to do that is threatened by high power costs. If your [Bonneville's] rates are too high, it's very unlikely we'll be able to make it work. We'd be faced with closing our doors.”

For its public utility customers, Bonneville is proposing an initial rate of about \$30 per megawatt hour.

However, that could vary substantially from year to year depending on a host of issues, such as how much revenue the agency earns from surplus power sales and how much it has to spend on salmon recovery efforts.

For CFAC and the other industrial customers, Bonneville is taking a different approach.

Rather than provide any low-cost power to the firms, the agency is proposing a limited subsidy — a move that leaves the companies subject to market price fluctuations.

“Bonneville is offering a financial payment that would help us buy down the cost of market power,” Stromberg said, referring to electricity that's purchased from for-profit firms on the free market.

CFAC's payment would be capped at \$14.7 million per year. It would be paid on a sliding scale, ranging from \$24 per megawatt for 70 megawatts of power to \$12 per megawatt for 140 megawatts.

For example, if electricity cost \$54 on the free market, CFAC could choose to buy that down to \$30 for 70 megawatts (\$54 minus \$24), or buy it down to \$42 for 140 megawatts (\$54 minus \$12).

Seventy megawatts would be status quo — enough to run one of the plant's five potlines; 140 megawatts would allow it to run two potlines.

“It would be our decision how to scale the payment, but we could only buy down to Bonneville's [public utility] rate,” Stromberg said. “We can't have a net rate that's less than what Flathead Electric would pay.”

Stromberg and other CFAC officials have repeatedly said the company needs power prices of

\$30 or less to continue to operate. They'd also like to increase production.

“We really need 140 to 170 megawatts,” Stromberg said. “At that level — two to two-and-a-half potlines — we'd have a better shot at maintaining viability. Running one potline ... that's not a good place to be.”

Bonneville is accepting public comment on its proposed rate structure through Feb. 13.

Written comment can be mailed to the Bonneville Power Administration, Communications — DK-7, P.O. Box 14428, Portland OR 97293-4428. Comments can also be e-mailed to [comment@bpa.gov](mailto:comment@bpa.gov) or submitted via the agency's Web site, [www.bpa.gov/comment](http://www.bpa.gov/comment)

BPA Administrator Steve Wright is expected to make a decision on the rate proposal by next July. His decision would then go to the Federal Energy Regulatory Commission for final approval.

Reporter Bill Spence may be reached at 758-4459 or by e-mail at [bspence@dailyinterlake.com](mailto:bspence@dailyinterlake.com)

**COMMENTER**

**RESPONSES**

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**GREENWALD, D.**

**NOAH**

Center for  
Biological Diversity

1. The Corps is committed to working towards the successful recovery of the endangered Kootenai River white sturgeon (sturgeon) and has been coordinating since the early 1990's with local, Tribal, State, regional, and Federal entities, including the Sturgeon Recovery Team (SRT), to achieve this common goal. Through these efforts and studying the sturgeon's lifecycle, the best available science does not point to a single solution which will lead to a reversal of the species decline.

The purpose of the preferred alternative is to provide reservoir and flow conditions to benefit both anadromous and resident listed fish species consistent with authorized project purposes, including maintenance of the current level of flood control benefits. Recognizing that, the alternatives were developed in consideration of the biological opinions on operation of the Federal Columbia River Power System (FCRPS).

The Corps has thoroughly analyzed all proposed alternatives and selected a preferred alternative which meets both the stated purpose and need of this EIS, consistent with our obligations under the Endangered Species Act (ESA), the National Environmental Policy Act (NEPA), and our agency responsibilities and obligations.

The selection of Alternative LVB as the preferred alternative for Libby Dam takes into consideration the Corps' statutory responsibilities, in addition to other economic, environmental, and technical factors. LVB provides for a range of flows tailored to the water conditions in any given year, is consistent with the U.S. Fish and Wildlife Service (USFWS) 2006 Biological Opinion and Reasonable and Prudent Alternative (RPA), as well as the Corps' other responsibilities and obligations..

2. The Corps and the Bonneville Power Administration (BPA), the Action Agencies, reinitiated consultation with the USFWS concerning the effects of the operation of Libby Dam on the Kootenai River white sturgeon, its critical habitat, and listed bull trout. A biological opinion (BiOp) was issued on February 18, 2006, which supersedes the 2000 USFWS Biological Opinion.

The USFWS 2006 BiOp RPA incorporates adaptive management principles providing for the Corps, BPA, and the USFWS to make adjustments, such as Libby Dam releases, as information is obtained on the biological response of the sturgeon, as well as attainment of the habitat attributes the sturgeon rely on for successful spawning, incubation, and recruitment.

The USFWS 2006 BiOp RPA identifies depth, velocity, temperature and substrate attributes which the USFWS has determined to be necessary to adequately provide for successful sturgeon spawning and natural in-river reproduction. The USFWS recognizes that there may be several ways to achieve these attributes, and the 2006 BiOp RPA provides flexibility in determining how these are attained. While release of flows up to 35 kcfs (powerhouse plus 10,000 cfs spill) out of Libby is the mechanism available in the near term to achieve the desired attribute of depth for up to two weeks, the Corps and BPA are pursuing habitat actions that may reduce the need for such peak releases in the future.

Given the substantial economic, environmental, and technical considerations needed to support dam modifications, such as installing additional turbines and transmission facilities, this scientifically sound approach will provide needed information to make management decisions that will be effective in the recovery of the sturgeon. The USFWS 2006 RPA provides that if powerhouse releases plus 10,000 cfs result in demonstrable biological benefits to sturgeon, and if, by April 2010, the Action Agencies determine in coordination with the USFWS that there are no other means to provide for the attributes, then the action agencies shall seek means to more reliably provide the 10,000 cfs including the potential of additional turbines.

**COMMENTS**

**RESPONSES**

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**GREENWALD, D.  
NOAH**

[CONT'D]

3. As noted in Section 3.3.4, the preferred alternative will provide flows for sturgeon that are tailored to a given year's water supply conditions, and will increase the probability of reservoir refill to provide summer flows for listed salmon, while continuing research, monitoring, and evaluation of the biological response of sturgeon and the attainment of habitat attributes necessary for successful sturgeon reproduction – all of which are consistent with the stated purpose and need. The comment notes that flow augmentation provided in past years “has proven ineffective at inducing the [s]turgeon to spawn over suitable habitat,” asserting that increasing flows by an additional 10,000 cfs would be sufficient to cue sturgeon migration and spawning in more suitable areas. However, monitoring since the early 1990s over a range of river conditions, including high-flow years like 1996 and 1997, has not detected a correlation between flows and successful spawning, hatching, and larval survival. Sound biological information concerning river conditions that will lead to successful sturgeon spawning and recruitment is lacking; thus, the intent of the selected preferred alternative, LVB, is to allow for a range of flows, depending on the water supply conditions, that will be evaluated to assist in providing information necessary to make sound management decisions for sturgeon recovery.

The referenced BPA document is addressed in comment 4 below.

4. The selected preferred alternative in the Final EIS, LVB, is responsive to the USFWS 2006 BiOp. As discussed above, the peak flows of 35,000 cfs are to achieve a desired depth for up to two weeks in the late May or June time period. The Final EIS includes an evaluation of the impacts associated with providing flows up to 10,000 cfs above powerhouse capacity for up to two weeks using the spillway.

The USFWS 2006 BiOp RPA acknowledges that the attributes can be achieved through a variety of methods. The specific attribute that 35,000 cfs is trying to provide for is the depth component for up to two weeks. The 2006 BiOp recognizes that the depth attribute may be achieved by a combination of actions: by providing additional flows from Libby Dam in coordination with the State of Montana, by deepening the existing channel through habitat improvement measures, or in cooperation with Canadian dam operations, increasing the elevation (backwater effect) of Kootenay Lake. The USFWS BiOp RPA allows the Corps and BPA the flexibility to determine the means to achieve the attributes.

Your comments included a quote from the draft EIS concerning methods to provide an additional 10,000 cfs from Libby Dam and an assertion that there are “relatively cost-effective solutions” by installing additional turbine/generators and associated transmission facilities. The Corps and BPA developed additional information and analyses over the course of the ESA consultation and the resultant BiOp and RPA, regarding mechanisms available and a sound approach to providing additional flows. Regarding the installation of additional turbine/generators and associated transmission issues, analyses include: a report entitled “Additional Hydroelectric Unit Study Libby Dam” prepared by Berger/ABAM; a BPA Transmission Study; and a Reclamation Study on the impacts to Hungry Horse Reservoir operations from adding additional generation at Libby. The Action Agencies’ Supplemental Biological Assessment and additional information provided during the consultation summarized this information and concluded that adding units 6 and 7 to increase the powerhouse capacity is not a reasonable or economically prudent near term option. Access to this additional information will be provided in the Final EIS in Section 2.5, Alternatives Eliminated From Further Consideration, at the discussion about Additional Turbines or Other Structural Modifications. There the reader will find the URL for the Documents and Links section of the website for the EIS (<http://www.usbr.gov/pn/programs/VARQ/links.html>).

Further, the sections you quote from the BPA feasibility study on transmission do not reflect the full complexity of adding turbines and associated transmission capability, and the conclusions drawn represent an oversimplification of the issue. The following information was

**COMMENTER**

**RESPONSES**

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**GREENWALD, D.  
NOAH**

[CONT'D]

supplied by BPA as the Federal agency with expertise in matters pertaining to transmission and power load requirements. The referenced BPA study describes a series of transmission solutions that would need to be implemented to maintain transmission stability if two additional turbines were added at Libby. However, there are considerations that make such transmission reinforcements either impractical or economically unreasonable. For example, they do not recognize the likelihood of having to shut down turbine units during system outages (which could occur more frequently by pushing the system limits) resulting in undesirable large fluctuations in flow. They also do not recognize the need for additional load shifting between Libby and Hungry Horse dams, which could impact Reclamation's ability to meet flow and reservoir draft requirements important for bull trout and other species on the Flathead River. These issues are discussed in more detail in the Supplemental Biological Assessment that the Corps and BPA submitted to the USFWS in July 2004.

Regarding your last point concerning the operation of Columbia Falls Aluminum, the smelter's load requirements are extremely inflexible and generally operate at a steady, constant level for a long period of time. The approximate two week peak load that would occur with the new generation from additional turbines at Libby would not meet the firm load requirements necessary to operate this plant.

The USFWS 2006 BiOp RPA clarifies the objective for providing peak flows for up to two weeks is to achieve the desired attribute of depth over suitable substrate, and acknowledges that there are other means to attain the necessary depths. The Corps and BPA cannot conclude at this time that additional turbines and transmission facilities are an appropriate, reasonable, or cost-effective solution.

5. The preferred alternative combination identified in the Final EIS, LVB+HV, is consistent with the USFWS 2006 RPA. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for the attributes. While release of flows up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

6. Given that the stated purpose of the project is to enhance ecosystem conditions for depleted populations of fish, we disagree with the statement that the Corps lacks concern for the functioning and sustainability of its ecosystems. The Final EIS documents potential benefits and adverse impacts to Kootenai River resources under different alternative operations. The preferred alternative must take into account the numerous responsibilities of the Corps, in addition to other economic, environmental, and technical factors.

With regard to burbot, the Final EIS recognizes that Libby Dam has resulted in some cumulative adverse impacts to burbot (Section 3.4.4), but provides information about the Memorandum of Understanding Concerning the Kootenai River/Kootenay Lake Burbot Conservation Strategy. The Corps, along with a number of other parties, is committed to restoring and maintaining a viable and ultimately harvestable burbot population.

Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses

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**COMMENTER**

**RESPONSES**

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**GREENWALD, D.  
NOAH**

[CONT'D]  
7. See Response to Comment 5.

Kalispell Public Meeting, November 29, 2005

24 MR. ROACHE: Doug Grob.

25 MR. GROB: My name is Doug Grob. I live in  
1 Kalispell, Montana, here. I don't know if you want a  
2 specific address or not.

3 I'm also a member -- a trustee of Flathead  
4 Electric, but I'm not here at the behest of Flathead  
5 Electric. I am here for myself. I would say, for a  
6 long time -- I mean I have the same fears -- being the  
7 last speaker in line, you always end up being the  
8 repeater, you might say. I have felt that this EIS may  
9 have been more scripted than being, you might say,  
10 intellectually honest with ourselves here. I do feel  
11 that, with the large concentrations of population  
12 towards the down-river flow of the Columbia, that those  
13 people and their issues, specifically their salmon and  
14 et cetera, have probably weighed the recipe under which  
15 this, you might say, colored the glasses under which  
16 this EIS was projected and has come to the conclusion  
17 it's come to.

18 As a matter of fact, from what I understand  
19 from certain people, dissolved-gas issues have even  
20 been -- for the flow augmentation of downstream  
21 anadromous fish, have even caused fish kills below some  
22 of our dams on occasion when this is done.

23 These things I just wonder if they've got --  
24 I don't feel that enough has been given to what happens  
25 in Montana with the full flow of the Columbia as it's

1

2

3

1 going down for what it affects people with more  
2 political power, because of size, money, and voice in  
3 the media than what we have here.

4 I would back what Mr. Myers says, that,  
5 regardless of how much impact we have, Montana as a  
6 state -- and also Verdell Jackson has mentioned it here  
7 earlier -- those economic issues to us, though they  
8 pale in comparison with the size of the dollars  
9 downstream, are very important to our communities here.

3

10 That's my concern. I sometimes believe that it almost  
11 has to maybe be revisited from an upriver perspective.  
12 And that's my concern.

13 I say to you, I have to leave it to you in  
14 your hands here, but you have to be intellectually  
15 honest with yourselves when you present this. Be  
16 certain that we up here, for our fish and our concerns  
17 and our economies, are not sacrificed on the lamb of  
18 what it is downstream because of the economic prowess  
19 that they carry juxtaposed to ours.

20 Thank you.

21 MR. LECHEFSKY: Thank you, Doug.

**COMMENTER**

**RESPONSES**

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**GROB, DOUG**

Draft EIS Public Meeting, November 29, 2005, Kalispell, MT (transcript)

1. Thank you for your comment. Reclamation and the Corps appreciate and attempt to balance the concerns for resources throughout the entire Columbia River basin, for both upstream and downstream communities. As required by Council on Environmental Quality regulations for implementing NEPA (40 CFR 1502.14), the EIS has adequately considered a reasonable set of alternatives that meet this project's purpose, which is "to provide reservoir and flow conditions at and below Libby and Hungry Horse Dams for anadromous and resident fish listed as threatened or endangered under the ESA, consistent with authorized project purposes including maintaining the current level of flood control benefits." NEPA does not require consideration of alternatives that do not meet the purpose and need; there were alternatives that were considered but not selected for a detailed evaluation, as discussed in Section 2.5 of the EIS.

2. In 1997, the Montana Department of Environmental Quality issued a Notice of Violation and Administrative Order for exceeding the State water quality standard for TDG below Hungry Horse Dam. While the TDG standard of 110% maximum saturation was exceeded at that time by Hungry Horse Dam, fish mortality as a result of gas bubble trauma was not documented. In response to the Notice of Violation, Reclamation agreed to monitor TDG levels in the South Fork Flathead River below Hungry Horse Dam. This monitoring continues to occur. The DEIS indicates that the incidence of spill at Hungry Horse Dam will increase very slightly (1%) under alternative HV. However, Reclamation will try to limit spill as a percent of total flow to 21% to keep TDG levels below the State of Montana total dissolved gas criterion to protect the aquatic life resources below the dam.

3. We agree that it is important to identify any impact felt by regional economies as a result of the proposed Federal action. Identical methodology was used to analyze the impacts of the proposed action upon regional economies within the Kootenai River basin, Pend Oreille River basin and the main stem Columbia River. Potential impacts to the economy in this area of Montana resulting from the proposed action are analyzed and are reported in Section 4.2.14 of the EIS, with further details in Sec. 4 of Appendix F (Detailed Socioeconomic Assessment).



## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

729 NE Oregon, Suite 200, Portland, Oregon 97232

Telephone 503 238 0667

Fax 503 235 4228

December 21, 2005

U.S. Army Corps of Engineers  
Seattle District  
Attn: Mr. Evan Lewis, PM-PL-ER  
P.O. Box 3755  
Seattle, WA 98124-3755

Dear Mr. Lewis:

The Columbia River Inter-Tribal Fish Commission (CRITFC),<sup>1</sup> has reviewed the draft Environmental Impact Statement (DEIS) for the Upper Columbia Alternative Flood Control and Fish Operations (herein "DEIS"). We offer the following general and specific comments on the DEIS.

### General Comments

On December 13, 2002, CRITFC filed comments on the document entitled: *Upper Columbia Alternative Flood Control and Fish Operations Interim Implementation: Libby and Hungry Horse Dams; Montana, Idaho and Washington: Draft Environmental Assessment, December 2002*. We incorporate that submittal by reference into these comments. In our submittal on the DEA we requested that the Corps consider the alternatives from a Columbia Basin perspective and in particular examine:

- An alternative that incorporates flood control flexibility at Lake Roosevelt with VARQ operations at Libby and Hungry Horse to avoid a compensating draft at Lake Roosevelt.
- An alternative that explores the acquisition of additional flood control storage from Canada through purchasing this storage.

In our review, we have found that the DEIS has failed to examine the above alternatives. The DEA assumes that a compensating draft of Lake Roosevelt is necessary in order to implement VARQ for Libby and Hungry Horse, without providing any analysis of any possible additional flood control risk from this operation. If a compensating draft from Lake Roosevelt is necessary to offset VARQ operations, the Corps should provide in the final environmental impact

1

<sup>1</sup> CRITFC was formed in 1977 per formal resolution of the governing bodies of the four Columbia River treaty tribes: the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon and the Nez Perce Tribe. The Commission is comprised of elected and appointed tribal officials who are members of their respective fish and wildlife committees. The Commission has technical and legal resources that provide assistance to the tribes in protecting and enhancing their federally-reserved trust resources.

1

statement a technical, quantifiable and justifiable analysis of additional flood risk should the compensating draft not be implemented. With respect to the acquisition of additional Canadian flood control space, the DEIS is also silent. Section 1.3 in Appendix J notes that the Mica/Arrow flood control allocation was increased from 7.18 Maf to 7.68 Maf to "...reflect the allocation now used in the actual operations", but the DEIS does not explain if the additional 0.5 Maf is available as additional flood control space. Additional flood control space in Canada could reduce the need for Lake Roosevelt compensating drafts and should be fully considered in the final environmental impact statement.

2

CRITFC supports the alternative LV2-HV (VARQ Flood Control at Libby with fish flows up to powerhouse capacity plus 10 kcfs and VARQ Flood Control at Hungry Horse). The DEIS indicates that this alternative is superior in accommodating anadromous and resident fish, wildlife and power needs than any other DEIS alternative in the following respects:

- A more natural peaking hydrograph is produced by this alternative that will support sturgeon, bull trout, burbot, salmon and Pacific lamprey life histories and habitats and overall basin ecosystem health.
- FCRPS BiOp targets are more often met.
- Sturgeon spawning flows can be met which is critical given the seriously depressed status of this stock in the Kootenai River.<sup>2</sup>
- The ecological attributes of the Flathead and Kootenai Rivers are better supported than any of the other alternatives.
- Total dissolved gas standards can be meet in the Kootenai River.
- Additional power generation can be realized.

3

The installation of additional turbine(s) at Libby Dam is critical to avoid: 1) involuntary spill that violates the 110% water quality standard and, 2) to provide additional flows for sturgeon spawning and downstream spring salmon flows without violating the water quality standards. This measure was identified as a critical need by in the 1998 Three Sovereigns Report, "*Future Fish and Wildlife Costs*", in which the Corps was a key participant. That report identified the installation of three turbines at Libby at a cost of \$16 million with a 78% power cost share.<sup>3</sup> Installing additional turbines at Libby makes sense from both a power and water quality perspective. Further, installation of additional turbines could allow for increased storage in high flow years without the "fill and spill" operation identified by Montana as impacting aquatic resources in the Kootenai River. We urge the Corps to move forward in implementing this alternative in an expeditious fashion.

4

As an interim measure, until the LV2-HV alternative can be implemented, CRITFC supports the LV1-HV alternative with physical stream changes near Bonners Ferry, Idaho.

<sup>2</sup> While this alternative specifies that a powerhouse flow of up to 35 kcfs would be provided, elsewhere in the DEIS (Pg 66) it is mentioned that the sturgeon recruitment was successful only once when 40 kcfs was provided in the Kootenai River. This flow range was also recommended by the USFWS for sturgeon incubation flows (DEIS Pg 66). Thus, providing higher turbine capacity than 35 kcfs may be more appropriate for Kootenai River sturgeon spawning flows.

<sup>3</sup> The power cost share is the amount that the Corps would be reimbursed by BPA for implementation of this action.

## Specific Comments

- 5 { Section S-6 Alternative LV@-VARQ with fish flows up to powerhouse capacity plus 10 kcfs  
This section states that "...no mechanism to achieve additional flow capacity has been identified within existing TDG standards or power market and transmission limitation." However, as mentioned above in these comments, the Corps, through the 1998 Three Sovereigns' Process, identified the installation of three turbines as a mechanism to alleviate total dissolved gas impacts from provision of increased fish flows. The final environmental impact statement should include this mechanism and create a process and a schedule for it to be implemented.
- 6 { Section S- 11 Mainstem Columbia River  
We concur with the statement that climate change could change runoff and flow patterns in the Columbia Basin as documented by Cohen et al. (2000). Adding additional turbines at Libby will create the flexibility to meet fish, water quality and power operations.
- 7 { Section S-31 Table S-5  
We do not understand why alternative LV2-HV would cause "...some risk of forced spill with elevated TDG" and that this alternative has the "...highest potential TDG levels and durations compared to all other alternatives" if additional turbine generation is installed under this alternative which will eliminate spill. Please clarify.
- 8 { Section S-35 Table S-5  
Pacific lamprey are an important tribal trust asset and living cultural resource and will be affected by the various alternatives. The final environmental impact statement should reflect the impact of the various alternatives on Pacific lamprey.
- 9 { Section 1.2.2  
The dramatic decline of Kootenai White Sturgeon, "... fewer than 500" and "...declining at a rate of 9% per year" demands immediate attention and creation of higher spawning flows.
- 10 { Section 1.4.2 Sturgeon Flow Augmentation  
The limitation of spill to 1,000 cfs or violation of the 110% TDG standard would occur argues for additional turbine units, otherwise sturgeon and downstream fish flow needs cannot be met.
- 11 { Section 1.4.2 USFWS 2000 FCRPS Biological Opinion – Bull Trout Minimum Flows (p. 8):  
Why are the minimum flows, based on the Water Supply Forecast (WSF) for Hungry Horse (HGH) Inflow, based on a WSF of April through August timeframe? The publicly issued forecast for HGH inflow is either January through July or April through September. It is more

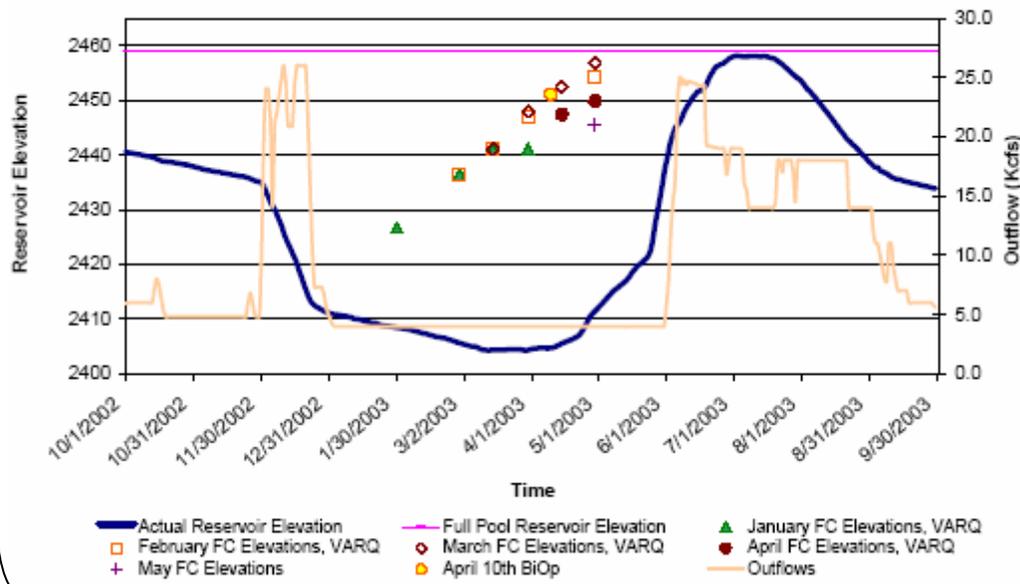
11

logical to use the April through September forecast. The final environmental impact statement method should reflect this change.

Section 1.4.5 Interim Implementation of VARQ FC

The DEIS states that the Corps implemented VARQ operations at Libby in 2003, however, that is not the case. Based upon the flow and elevation data for Libby in 2003 (FPC 2003), the Corps was not able to implement VARQ operations that year. As depicted by the following data, Libby was drafted well below flood control rule curves throughout the winter. Despite low runoff forecasts in December, the Corps prematurely drafted Libby to msl 2411 which set the stage for the inability to implement VARQ operations to refill Libby. The final environmental impact statement should correct this inaccuracy.

12



13

Section 1.5 Issue 6 Power Generation

The DEIS states that B.C. Hydro is evaluating the DEIS alternatives. We suggest that B.C. Hydro’s submittal, if any, to the DEIS may significantly impact alternatives and may warrant a supplemental DEIS. We request that this be considered by the Corps and Reclamation.

14

Section 1.6 Issues Considered – Variable December draft at Libby (pp. 14-15):

For the last two years, the Corps has implemented this new approach in order to reduce December flood control drafts at Libby that led to failure to meet the VARQ operation in 2003 (see above comment). The variable draft methodology that depends on the SOI index appears deficient. For example, the SOI index suggests a “near normal” inflow forecast for Libby, the pool is drafted to elevation 2411 feet, an extended dry period ensues, and the reservoir struggles to meet its April 10<sup>th</sup> URC or VARQ requirement. We strongly recommend that the Corps

consider examining other indices and perform regression analyses to avoid premature drafting jeopardize VARQ operations. One possibility is using the Multivariate ENSO Index (a.k.a., MEI) which is a more sophisticated and comprehensive gage of ENSO activity in the tropical Pacific (NOAA-CDC, 2005).

14

Further, the Corps should also avail themselves to the state-of-the-art forecasting research of the Climate Impacts Group, of the University of Washington (CIG 2005). The CIG is constantly developing and refining new water management tools for Pacific Northwest water managers that the Corps has yet to consider. Hamlet et.al. (2003) have developed a “Refill to Least Flood Rule Curve” for Libby, using probabilistic streamflow forecasting that should be explored. The CIG is researching ways to incorporate ENSO signals into specific mainstem flow models (Leung et. al. 1999). The Corps should examine, with the CIG, new pre-season forecast methods for better water management. This is an important issue that significantly affects the ability to implement the VARQ alternatives and should be included in the final environmental impact statement. CRITFC has particular expertise in the area of water management forecasting methods and we request that the Corps coordinate this issue with us.

Section 1.6, Issues Considered – Operating Flexibility (p. 15):

15

Although the statement, “Flood control rule curves provide a hard constraint on the upper limit for elevations...and are not a lower limit” may be true, but it is a poor way to provide water for fish. This statement should be removed from the final environmental impact statement. Such flexibility may be desirable from a multi-purpose operational standpoint; it is not always desirable from a fish standpoint.

Section 2.2, Libby Dam Alternatives (pp. 21 - 23):

16

What is a “typical year?” Nowhere in the DEIS is this word defined. Is “typical year” the average of the period of record of the hydro model or a single year (if so, which one?). The final environmental impact statement should plot flow and elevation for the high, medium, and low water year cases.

17

Table 2-3 clearly indicates that alternative LV2-HV provides the best benefits to fish.

Section 2.5, Alternatives Eliminated – VARQ FC and Kerr Dam (p. 26):

18

The Corps should take the initiative to explore the possibility of modernizing flood control operations at Kerr Dam. Such an effort could improve operations (i.e., increase chance of refill, etc.) and mitigate for VARQ operations at HGH without a compensating draft at Lake Roosevelt.

19

CRITFC supports the alternative of VARQ FC with physical stream changes near Bonners Ferry, Idaho. We believe it is consistent and appropriate to add this measure to the other VARQ alternatives.

20

Section 3.2.2 Ramping Rates

20 { While the DEIS mentions that fluctuation of ramping rates has more influence on levee integrity than higher flows and that “Short term flow fluctuations for weekly load following continue to impact river biota and should be mitigated especially during the low flow periods by reducing the rate of change or ramping rate..” (Pg. D-66), the DEIS does not provide an alternative that requires either reduced flow fluctuations or mitigation for these fluctuations. This is a very important issue and should be examined in the final environmental impact statement.

21 { Section 3.2.3, Water Quality – Dissolved Gas (p. 60):  
Has the Corps conducted a quantitative study to see how Kootenai Falls (near Troy, MT) can dissipate TDG levels at differing flow levels? Perhaps this study could be contracted out to a university. Using Kootenai Falls as a TDG control tool for Libby should be explored.

22 { Section 3.2.13, Socioeconomics – Flood Impacts (p. 85, p. 295, p. 392):  
Flood plain development in the lower Kootenai, with Bonners Ferry and Kootenai Lake are a growing problem that impact DEIS alternatives. For example, such development can adversely affect fish flows by limiting the flexibility of hydro operations and further diminish an already severely compromised, unnatural peaking river. The final environmental impact statement should include an alternative that explores the action agencies working with appropriate Canadian and U.S. authorities to limit and reverse the encroachment of settlements onto flood plains and lakes.

23 { Section 3.3.3, Aquatic Life – Libby (pp. 116 - 129):  
The DEIS is correct in plotting the high, medium, and low year cases in its biological diagrams. The final environmental impact statement should contain similar high, medium, and low year cases for the hydrology.

24 { Section 3.4.1, Hydrology and Flood Control – Libby (p. 174):  
The DEIS supports the concept of returning the river system to a peaking regime for basin ecosystem health as part of a holistic basin-wide ecosystem approach to species recovery. We concur in this approach. Regional technical staffs repeatedly recommend a holistic ecosystem and natural river regime approach to managing water and salmon resources in degraded basins (C-CIARN Conference 2005; Transboundary Conference 2002; Bunn and Arthington 2002). We do not believe, as the DEIS implies, that there is a conflict in meeting flow requirements for salmon and sturgeon. Providing a peaking hydrograph throughout the Columbia Basin in May and early June is advantageous to nearly all fish species and is consistent with the normative river paradigm espoused by the Independent Scientific Group (Williams et al. 1996).

25 { Section 3.5.1, Hydrology and Flood Control – LIB (p. 186):  
The DEIS could have provided alternatives for mitigation for flood plain development. Properties could be bought out or the levees could be built higher and/or reinforced. These are important issues that should be examined in the final environmental impact statement.

Section 4.3.1, Hydrology and Flood Control – HGH (p. 248):

26 { The DEIS fails to establish why RIVERWARE software was used instead of SSARR (the Corps' preferred flood control study tool) for modeling the VARQ HGH operation. So, how does one know if both the SSARR study of Libby and the RIVERWARE study of Hungry Horse are compatible (i.e., "apples-to-apples" comparison)? The final environmental impact statement should explain the rationale.

Section 4.3.1 Hydrology and Flood Control – KER, ALF, BOX (pp. 259 - 274):

27 { The difference between Standard FC and VARQ FC for Hungry Horse shows a minor increase, ~2000 cfs in June, in flow at Box Canyon, just a few miles before entering the Columbia. This minor difference argues for VARQ operations at Hungry Horse without a compensating draft at Lake Roosevelt.

Section 5.2.2, System Power (p. 309):

28 { As we stated in our comments on the 2002 draft EA, hydropower was not intended to be "...an important regional export product." The FCRPS was designed to meet regional power loads and not to market power outside the region. The final environmental impact statement should modify this statement.

Section 5.3.1, Hydrology and Flood Control – VARQ and Lake Roosevelt drafts (pp. 342 - 347):

29 { The difference between Standard FC and VARQ FC for Libby shows a minor increase, ~4500 cfs in June, in flow for the Columbia River at Birchbank, just above Lake Roosevelt. This minor difference argues for VARQ operations at Libby without a compensating draft at Lake Roosevelt.

30 { There appears to be some inconsistency in the modeling effort. The HYSSR model ran with 1948-1999 data and the SSARR model ran with 1929-1989 data. With the updated adjusted-modified streamflow dataset provided by BPA in July 2004, the final environmental impact statement should standardize its modeling so the period of records align.

31 { The Corps should make available its daily flood control study data (i.e., observed rule curve data since 1989) to the region, so that all regional hydro-regulation models can be updated and run on consistent data sets. The Corps' Division Hydraulic Engineering Branch should release their data to the Northwest Power Conservation Council and CRITFC so that the GENESYS model, HYDSIM model, and other models, can operate from a 70-year flow record. It is critical that the region be working from one consistent, peer-reviewed hydro-regulation model.

32 { One potential problem that the DEIS did not identify in a compensating draft at Lake Roosevelt to counter the VARQ operations at HGH and LIB is possible effects on Hanford Fall chinook. With a lowering of Lake Roosevelt during spring, daily and hourly flows could fluctuate more in

the Hanford Reach, and could negative impact juvenile salmon migrants as noted by Anglin et al. (2005).

32 The DEIS states that Lake Roosevelt would be, on average, down 1.6 feet in late April (or 100 KaF), relative to Standard FC (Table 5-16). It appears that 4 to 6 foot drafts (250-400 KaF) are likely in 20% of all years (Table 5-17). These VARQ effects are most likely in mid-to-late April, as Lake Roosevelt is reaching its flood control minimum elevation. That is also the time when Hanford Reach juvenile salmon are most vulnerable to flow fluctuations (Anglin et al. 2005). The final environmental impact statement should examine this issue.

Section 5.3.1, Hydrology and Flood Control – Mainstem Columbia (p. 348):

33 The 450,000 cfs value is cited as “Flood Flow” where it should be “Bankfull.” The final environmental impact statement should correct this statement. The real flood flow value is in the 500,000 to 550,000 cfs range.

34 It is very odd that the incidence of flood risk increases by 3%. Is this a mistake? It is not clear from the DEIS if that statement is based on a compensating draft at Lake Roosevelt or not. The DEIS states that VARQ operations would be flood risk neutral in the lower Columbia.

Section 6.2, Tribal Consultation (p. 402):

35 To CRITFC’s knowledge, there was no formal consultation with CRITFC’s member tribes on the DEIS. Either the Corps and Bureau should engage the tribes in consultation or the final environmental impact statement should clarify which tribes were consulted and which ones were not. With respect to cultural resources and tribal trust assets, there is no bright line between these terms. The tribes consider fish and wildlife to be living cultural resources as well as trust assets. The final environmental impact statement should reflect this important consideration.

### Conclusion

36 CRITFC appreciates the opportunity to provide these comments on the DEIS. We support the implementation of the LV2-HV (Libby VARQ operation with additional turbine units and Hungry Horse VARQ operation) as a preferred alternative that will best serve anadromous and resident fish, water quality and power needs. Further, we believe that there are appropriate mechanisms to move forward to implement this alternative as identified in previous regional processes. In the interim, beginning in 2006, we support the LV1-HV (Libby and Hungry Horse VARQ operations) and we recommend that the DEIS cooperating agencies examine the possibility of improving physical stream changes around Bonners Ferry, Idaho. Should you have questions regarding these comments, please contact me or Kyle Dittmer at (503) 238-0667.

Sincerely,

/s/

Robert Heinith  
Hydro Program Coordinator

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**HEINITH, ROBERT**

Columbia River  
Intertribal Fish  
Commission

1. Your comments recommend evaluation of an alternative to avoid a compensating draft at Lake Roosevelt. Evaluation of VARQ flood control operations at Hungry Horse and Libby without the compensating flood control draft at Lake Roosevelt (and other shifts in draft/storage) is better suited as an alternative to be addressed in the proposed Columbia River System Flood Control Review. The additional risk of not providing a compensating flood control draft at Lake Roosevelt has the potential for increased flooding downstream - in particular the Portland-Vancouver area. The proposed Columbia River System Flood Control Review could include an analysis of this increased risk.

2. You also recommend inclusion of an alternative that explores the acquisition of additional flood control storage space from Canada. The Columbia River Treaty is clear that "on-call" flood control storage is available only to *reduce flooding* in the United States. It is not available to augment flows during May and June. The most recent Columbia River Flood Control Operating Plan (Corps 2003a) summarizes that both a 3.6 MAF/4.08 MAF and 5.1 MAF/2.08 MAF allocation of primary flood control space between Mica and Arrow, respectively, provide an equivalent level of flood protection at The Dalles, Oregon. Under either allocation of Canadian storage, the calculation for the flood control draft at Lake Roosevelt is developed using this upstream storage as input. Currently, Canada is operating under the 3.6 MAF/4.08 MAF allocation of storage at Mica and Arrow.

3. The preferred alternative identified in the Final EIS, LVB+HV, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative and the operations considered in the NOAA 2004 BiOp. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) above the Montana water quality standard of 110%. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

The referenced 1998 Three Sovereigns Report on costs of installation of turbines has not been updated to reflect current conditions. The analysis relied on for the Final EIS concerning the addition of turbines and associated transmission facilities is information identified in the July 2004 Supplemental Biological Assessment on the effects of the operation of Libby Dam on Kootenai River white sturgeon and bull trout, as discussed in Section 2.5 of the Final EIS. Installation of turbines or other dam modifications may be an option if flow tests determine flows of up to 35,000 cfs result in successful sturgeon spawning and recruitment, and the only means available to achieve this objective.

4. See Response to Comment 3 above. As documented in Section 2.5 of the EIS, non-operational actions such as construction of in-water structures and possible substrate modification are outside the scope of this EIS. The Corps and BPA agree that habitat modifications can also benefit sturgeon reproduction, and are pursuing such actions in the Kootenai River near Bonners Ferry consistent with the USFWS 2006 RPA. These actions will be supported by separate NEPA documentation as appropriate. Ecosystem and species recovery actions are a reasonably foreseeable future action that is considered in the discussion of cumulative effects of the EIS alternatives in Section 3.4.

5. Please refer to the Response to Comment 3 above.

6. The USFWS 2006 BiOp RPA recognizes that there are several ways to achieve the habitat attributes, and provides flexibility to select the means to provide for these attributes. While flow releases up to 35 kcfs out of Libby Dam may achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that will attain the desired habitat attributes and reduce the need for such releases in the future. As noted in the Response to Comment 3,

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if flows are determined to be the only means that achieve the necessary attributes to provide for successful sturgeon spawning and recruitment, turbines may be an option for the long-term. The installation of additional turbines at Libby Dam will likely minimize TDG exceedances below the project; however, the Final EIS documents that increased Libby Dam releases during the spring and early summer would tend to increase incidences of spill on the main stem Columbia River, resulting in higher TDG levels.

7. Table S-5 in the Executive Summary summarizes effects of the different alternatives on the main stem Columbia River dams - not the Kootenai River basin. As noted in the Response to Comment 6, providing additional flow capacity with additional turbines at Libby Dam during the spring and early summer would tend to increase the incidence of spill at the main stem Columbia River projects resulting in higher TDG levels as these higher flows pass through the system. Based on the best scientific information available, support for the installation of additional turbines has yet to be determined; however, with the selection of the preferred alternative, LVB+HV, information will be obtained that will assist in making sound decisions that will effectively benefit the recovery of the sturgeon.

8. We recognize the importance of lamprey to the tribes. There is not expected to be any appreciable difference among alternative combinations with respect to lamprey migration. The following language concerning lamprey has been added to Section 5.3.4, under Main Stem Columbia River Downstream of Grand Coulee Dam: "Based on available information, there is likely to be little difference in effect on lamprey migration among the alternative combinations. Moser et al (2003) indicated that there appears no clear effect of flow or temperature on rates of passage through dam facilities." Section 5.3.13 has also been amended to note that impacts to lamprey would be similar under all alternatives.

9. Comment noted. See Response to Comment 3 above. The Corps is applying all possible resources to sturgeon recovery efforts, and the preferred alternative is an important component of this effort.

10. As noted in the Response to Comment 3, the Corps is coordinating with the State of Montana on releasing up to 10,000 cfs over the Libby Dam spillway and the resultant increases in TDG. As discussed, the USFWS 2006 BiOp RPA recognizes the objective is to provide for the identified habitat attributes - how these attributes are attained is subject to adaptive management and if additional flows are determined to be the best means to attain the necessary attributes to avoid the likelihood of jeopardizing the sturgeon, the Corps and BPA will evaluate the addition of turbines and the requisite transmission facilities, or other appropriate dam modification.

11. The USFWS prescribed the April through August timeframe in their 2000 FCRPS Biological Opinion to determine the bull trout minimum flows. Reclamation uses an inflow volume forecast for Hungry Horse that is calculated by the River and Reservoir Operations Group in the Pacific Northwest Regional Office in Boise, Idaho to guide Hungry Horse Reservoir operations.

12. While the Lake Koocanusa levels were lower than the VARQ FC rule curve throughout the winter, the Corps did in fact implement VARQ FC operations at Libby Dam for the 2003 flood control season. VARQ FC defines the desired objective for the reservoir elevation flood control rule curve; however in 2003, the actual reservoir elevation was below the rule curve. The April-through-August inflow forecast was near or below 80% of average, which is the threshold for reservoir elevations under the VARQ FC procedure to be higher than under Standard FC (see Section 1.4.4). In dry years, such as in 2003, actual Lake Koocanusa elevations are routinely lower than the end-of-month elevation rule curve targets. With Libby Dam minimum winter outflows held to 4,000 cfs from January through May 2003, as illustrated

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in the comment letter graphic, the objective was to retain as much water as possible in the reservoir to meet the VARQ flood control target elevation. Despite these minimum releases, low reservoir inflows accounted for the reservoir level dropping in 2003 from January through mid-May. Contrary to the assertion by the commenter that VARQ operations were not implemented, the only possibility for achieving the VARQ FC rule curve elevation would have been to reduce Libby Dam releases substantially below the 4,000 cfs minimum flow, and even that may not have been sufficient.

The 2002 end-of-December draft in effect at Libby Dam was elevation 2411. This was prior to implementation of the early forecast procedures and the variable end-of-December Libby draft, which was initiated in 2003. Further, it was prior to the decision to implement VARQ FC on an interim basis. For additional information concerning the end-of-December draft target, and how it may affect reservoir elevations under Standard FC and VARQ FC, please refer to Appendix M.

13. Comment noted. For transboundary impacts such as effects in Canada, we rely on existing information or studies supplied by Canadian stakeholders. In the Final EIS, we made revisions to incorporate the analysis of impacts in Canada based on information supplied by BC Hydro and other Canadian representatives.

14. Discussion of changes in runoff forecast methodology is outside the scope of this EIS. Runoff forecast methodology is periodically reviewed and updated to decrease the range of possible error in runoff forecasts. As recently as 2005, the Corps updated the December forecast technique at Libby using the principle components regression analysis. Future changes in forecast methodology would further improve the Corps' ability to manage system operations for its multiple purposes. Additionally, the comments concerning forecasting are being discussed in the court ordered remand of the Biological Opinion in NWF v. NMFS. See Response to Comment 12.

15. As stated in Section 1.4, the Federal Columbia River Power System dams "...operate in coordination with Canadian and private facilities to provide for a variety of uses such as hydropower, flood control, navigation, and fish and wildlife purposes. System operations are optimized through cooperative processes to use the limited water supply to maximize benefits to all resources." While particular stakeholders may advocate for their particular interest concerning resources, the Federal agencies are responsible for providing for the multiple uses of the system consistent with applicable statutes, regulations, and treaties.

16. The EIS attempts to balance the level of detail so as to provide enough technical information for the expert while still being understandable to the general public. Figures 2-1 and 2-2 are intended as generic figures that provide a sense of how the different dam operations relate to each other. To clarify, Figures 2-1 and 2-2 have been revised to specify that the hydrographs for Lake Koocanusa elevation and Libby Dam releases are the simulated hydrographs based on 1968, which represents a typical, near-average year in terms of runoff volume and timing. The text has been revised to state that the differences between Lake Koocanusa elevation and Libby Dam releases for the different alternatives in wet and dry years would tend to be more similar than the hydrograph figures. Also, note that Figure 3-2 shows a "typical annual hydrograph" that represents the seasonal reservoir-level fluctuation based on current operating criteria, and was assembled blending actual reservoir elevations from several recent years. This typical hydrograph provides context to the discussion of management of Lake Koocanusa levels in the text. More detailed information on different water years can be found in Appendix B.

17. Table 2-3 summarizes the component operations for the different alternative and benchmark combinations for the main stem Columbia River, not the potential impacts and benefits to resources, which are documented in Section 5.3.

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18. This is not within the scope of this EIS.

19. See Response to Comment 3.

20. The ramping rates for all alternatives at Libby Dam are consistent with the proposed action analyzed in the USFWS 2006 BiOp, which were developed for protection of aquatic life and balance fish and wildlife purposes with hydropower production. Curtailment of load-shaping on a seasonal basis has been added as potential mitigation for impacts to aquatic life in Section 3.5.

21. Monitoring during the 2002 spill event at Libby Dam determined that Kootenai Falls re-sets the TDG levels in the Kootenai River (i.e. the TDG level downstream of the falls is essentially independent of the TDG level upstream of the falls). TDG levels at Kootenai Falls are not representative of the TDG levels in the 29 miles between Libby Dam and Kootenai Falls.

22. Comment noted. Possible mitigation for socioeconomic impacts is discussed in Section 3.5.12. However, the action agencies have limited authority to participate in and affect land use and floodplain management.

23. Thank you. The hydrology analysis evaluated the entire 52-year period of record and summarizes those results through use of flow/stage-frequency and flow/stage-duration curves. This information can be found in Appendix B. Note that the raw output from both the hydro-regulation and the biological modeling can be obtained by contacting Evan Lewis, Seattle District Corps, at [evan.r.lewis@usace.army.mil](mailto:evan.r.lewis@usace.army.mil) or 206-764-6922.

24. The discussion in Section 3.4.1 is based on the current framework for providing summer salmon flow augmentation at Libby Dam consistent with the action considered in 2004 NOAA Fisheries FCRPS Biological Opinion. In that context, the statement in the EIS is correct that late summer flows would be higher than normative flows below these projects. To clarify, the EIS has been revised to describe the allocation of stored water for sturgeon flow augmentation and summer salmon flow augmentation, particularly in the late summer (see Figures 2-1 and 2-2 for a graphical representation of the relative differences in Libby salmon flows between alternatives with and without the additional flow capacity).

25. Comment noted. The EIS discusses mitigation pursuant to NEPA requirements, and notes that the identified potential mitigation measures, including some of the options to mitigate for flooding, may not necessarily fall within the jurisdiction or authority of the Corps or Reclamation. For instance, section 3.5.1 states: "If local landowners wish to further decrease flood risk, then discussion of levee repairs and upgrades, structural relocation, and individual structural flood proofing are potential measures that may be pursued."

26. Use of various software in hydroregulation modeling for the EIS was explained in Appendix I.

27. Hungry Horse Dam is owned and operated by Reclamation; therefore the daily simulation modeling conducted for the DEIS was performed by Reclamation in order to capture all of the nuances of real-time operations. Riverware, a general river basin modeling software tool developed by the Center for Advanced Decision Support for Water and Environmental Systems, University of Colorado-Boulder, was used to perform the daily simulation modeling. Riverware is an accepted tool used by Reclamation to simulate reservoir regulation and stream flow routing. Riverware has been used by Reclamation for many years for operational and planning purposes throughout the West. Riverware can accurately depict daily reservoir operations, route stream flows, and always maintain mass balance, and results obtained from

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using Riverware would be compatible with results from SSARR (which was used for the Kootenai modeling).

28. The subject statement in the EIS, taken in its entirety, reads: "When there is a surplus, [power] is an important regional export product." While BPA typically utilizes regional power generation to serve regional needs, there are occasions when surplus hydropower generation is available as an important export product for the region. Without exporting this surplus power, high river flows (i.e. during the peak runoff period in higher runoff years) could lead to situations where regional load is insufficient to match system generation capacity, which could lead to increased involuntary spill and possible adverse water quality impacts in the Columbia River basin.

29. While the median difference in peak flow between VARQ FC and Standard FC is 4,500 cfs at Birchbank, the largest differences in specific years can be substantially higher. For example, in 1948, the simulated peak 1-day release for VARQ FC was 16,000 cfs higher than that for Standard FC. In addition to comparing peak releases, the duration of high flows is an important consideration for system flood control, and the flows under VARQ FC during the spring runoff period tend to be consistently higher than those under Standard FC. Maintenance of system flood control requires compensating at Lake Roosevelt for reduced drafting at Libby and Hungry Horse dams, as demonstrated by the system flood control modeling documented in Section 5.3.1. As discussed in Response to Comment 1, the alternative of implementing VARQ flood control operations at Hungry Horse and Libby without the compensating flood control draft at Lake Roosevelt is more appropriately addressed in the proposed Columbia River System Flood Control Review. For purposes of considering the system impacts in this EIS, an overarching operational assumption was to maintain the same level of flood control protection at Portland – Vancouver.

30. Appendix I explains the similarities and differences between the various hydroregulation modeling efforts and how they inter-relate. As Appendix I states: "As with any model, the inputs and assumptions that go into the model will influence the output of the model. Although the various hydroregulation models may differ in terms of water supply forecast inputs and periods of record, they provide a reasonable depiction of the hydrologic effects of the various alternative dam operations." Note that many of the EIS studies started prior to the release of BPA's adjusted modified stream flow dataset. Its use would not likely substantially alter the results of any of the modeling studies performed for the EIS.

31. Comment noted. The Corps prepares end-of-month flood control upper limits for use in hydroregulation models such as HYDSIM. Since BPA published the 70-year stream flow record, the Corps has been updating datasets to be used in these monthly time step hydroregulation models. Currently available are: the 70-year end-of-month flood control upper limits in the observed mode without use of VARQ and shifts from Dworshak to Grand Coulee, and the 70 year end-of-month flood control upper limits in the observed mode with VARQ and shifts from Dworshak to Grand Coulee. The Corps is preparing the 70-year end-of-month upper rule curve elevation dataset using synthetic forecast procedures; however, these studies will not be completed until late 2006. For use in real-time operations and decision-making the Corps publishes the end-of-month upper rule curve elevation on the web at <http://www.nwd-wc.usace.army.mil/report/colsum.htm>

32. As stated in Section 5.3.4, the degree of draft at Grand Coulee, a seasonal operation, may result in minor changes in Columbia River flow in the spring. Such seasonal changes in total river flow appear to be essentially independent of the daily load-following operations of Priest Rapids Dam that can cause flow fluctuations in the Hanford Reach and resulting fish entrapment or stranding. As stated in Anglin *et al.* (2005) regarding juvenile entrapment in the Hanford Reach, "...there is little quantitative basis for assuming that flow fluctuations at low flows are more harmful than the same fluctuations at high flow levels, or vice versa." Section 5.3.4 has been revised to clearly state this finding.

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33. The subject text will be changed to read as follows: "The chance that a bank-full level flow of 450,000 cfs at The Dalles (Corps 2003) would be equaled or exceeded in a given year..." A flow of 450,000 cfs at The Dalles is about equal to a stage of 16 feet as measured at the Vancouver gage. This is flood stage at Vancouver.

34. The system flood control hydroregulation modeling operated the system consistent with procedures in effect when the modeling was done, including adjusting draft at Lake Roosevelt based on upstream storage. As stated in the EIS, the slight differences between simulated flood frequencies for Standard FC and VARQ FC on the main stem Columbia River at Vancouver, Washington are well within modeling sensitivity and therefore considered equivalent or "flood risk neutral."

35. Coordination was conducted with the Confederated Salish-Kootenai Tribes of the Flathead Reservation, the Kootenai Tribe of Idaho, the Confederated Tribes of the Colville Reservation, the Spokane Tribe of Indians, the Kalispel Tribe, and the Coeur d'Alene Tribe. The Corps and Reclamation will participate in government-to-government consultation regarding this EIS and related operations at Libby and Hungry Horse dams and have sent letters to that effect to the regional tribes in the Columbia Basin, including the CRITFC member tribes. The Corps recognizes its trust responsibilities and notes the comment concerning cultural resources and tribal trust assets.

36. Comment noted. Based on the engineering and biological considerations discussed in the Response to Comment 3 and the Final EIS, the preferred alternative is LVB for Libby Dam and HV at Hungry Horse Dam. A decision on implementation of a selected alternative for both dams will be documented in a Record of Decision that will be issued after release of the Final EIS.



# Montana Fish, Wildlife & Parks

Fisheries Division  
P.O. Box 200701  
Helena, MT 59620-0701  
(406) 444-2449  
Fax: 406-444-4952  
December 22, 2005

U.S. Army Corps of Engineers, Seattle District  
ATTN: Mr. Evan Lewis, PM-PL-ER  
P.O. Box 3755  
Seattle, WA 98124-3755

Dear Mr. Lewis:

We appreciate the opportunity to comment on the Draft Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement. We congratulate the U.S. Army Corps of Engineers (ACOE) and Bureau of Reclamation (BOR) on their comprehensive evaluation of a very complex problem. The preferred alternatives are generally consistent with our preferred operating strategy and the intent of the Integrated Rule Curves and Northwest Power and Conservation Council (NPCC) Mainstem Amendments; however, important differences remain that must be addressed in the final EIS.

1 Specifically, the alternatives with fish flows assume a 20-foot summer draft in all years as per the NOAA-Fisheries Biological Opinion summarized on pages 5 and 6 of the Draft Environmental Impact Statement (DEIS). This summertime draft target is being contested by Montana on scientific and legal grounds because of known impacts to Montana's native resident fish, including the threatened bull trout and endangered white sturgeon. A paragraph on page 6, end of sec. 1.4.1 of the DEIS, references subsequent changes to salmon flow augmentation addressed by the Northwest Power and Conservation Council's Mainstem Amendments and states that these deliberations are beyond the scope of the EIS. Nonetheless, our comments specifically address the operations necessary to protect and enhance resident fish in Hungry Horse and Libby Reservoirs and Flathead and Kootenai Rivers downstream. Plots of discharge resulting from the alternatives with fish flows represent a modeling artifact that shows a spring freshet followed by a flow reduction, then 2 a second pulse for anadromous fish flow augmentation. Although the model results are volumetrically correct, in reality the discharges could be normalized and smoothed to avoid inadvertent damages to Endangered Species Act (ESA)-listed resident fish. Dam discharge should not have a "double peak" as shown, but rather a gradual decline from the spring

2

freshet (within flood constraints) toward a "flat" stable flow or gradually declining flow through the end of September.

3

The operation of Hungry Horse and Libby Dams remains an important factor in the long-term viability of bull trout and other native species. The statement on page 2, sec. 1.2.2, "While the status of bull trout populations in the Kootenai and Flathead Rivers is generally better than some others in the Columbia River Basin..." seems to imply that operations for bull trout are less important because populations in Montana remain relatively stable. Long-term monitoring in the Kootenai and Flathead clearly shows that bull trout populations in both watersheds have declined since the installation of Libby and Hungry Horse Dams. While bull trout populations remain stable in the reservoirs and the tailwater of Libby dam, downstream populations remain at risk of extirpation due to isolation by the dams, alteration of critical habitats due to hydropower operations and negative interactions with nonnative fish species. Population viability research revealed that bull trout populations are greatly influenced by the survival of subadult bull trout after they emigrate from natal tributaries, which is the lifecycle phase that is directly influenced by dam operations.

4

The analysis in the DEIS showed a slight increase in 1) uncontrolled spill under variable discharge (VARQ), and 2) overflow of Flathead Lake. As the authors suspected, the modeling assumptions used in the analysis influenced these results. The "sliding refill date" strategy was not modeled exactly as Montana Fish Wildlife and Parks (MFWP) intended. ACOE and BOR modelers understand the sliding refill date concept, and should have clearly stated that uncontrolled spill under VARQ and overflow of Flathead Lake can be corrected by simply adjusting the refill date based on water supply. That is, the reservoir refill should be scheduled later in July during wet years and no earlier than June 30 in dry years. If this strategy is implemented, there will be no additional risk of items 1 or 2 above as compared to standard flood control.

5

VARQ combined with fish flows will generally increase river flows during spring and summer as compared to Standard Flood control. In the Flathead Watershed, the bull trout minimum flows (and salmon flows) generally increase Flathead River flows during less than average water-years, thus allowing Flathead Lake to fill at a faster rate. Likewise, fish flows generally provide higher summer flows, allowing Flathead Lake to remain closer to full pool during the biologically productive summer months. Unfortunately, the data presented for both Montana reservoirs indicate no change during drought years attributable to VARQ. This is because both reservoirs are often drafted below VARQ upper flood control rule curves (URCs) during dry water-years. National Oceanic and Atmospheric Administration's (NOAA)-Fisheries and the Columbia River Intertribal Fish Commission (CRITFC) are calling for operating Hungry Horse and Libby Reservoirs closer to the URCs to keep the reservoirs more full prior to spring runoff. Operating closer to the URCs would benefit fish in the reservoirs, rivers downstream and carry forward through Flathead Lake. If reservoirs indeed operate closer to the URCs, the fisheries benefits of VARQ could extend into more years on the dry end of the spectrum. Operating closer to the URCs

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benefits reservoir biology as long as the sliding refill date is implemented to reduce the probability of uncontrolled spills and attendant gas saturation problems.

6

Section 1.4.2. (Page 6) references the US Fish and Wildlife Service (USFWS's) determination in their 2000 Biological Opinion (BiOp) that the NOAA-Fisheries BiOp operations will not impact bull trout. We disagree with the interpretation of MFWP data used by the USFWS and suggest the operating agencies not adopt this assertion in their final EIS. Our published telemetry results documented that bull trout migrate into shallow habitat along river margins at night. Stomach content analyses show that juvenile bull trout feed on aquatic insects before becoming piscivorous as subadults. Both life stages are impacted when bull trout move into shallow habitats that were recently dewatered due to dam operations. Short-term flow reductions should be avoided and summer flows should be stabilized through September 30 to avoid impacting bull trout and their prey species.

7

We agree with the operating agency's rationale (page 8) to maintain or gradually transition flows to reduce short-term flow reductions that dewater habitat between the spring freshet and summer flows. Stable flows should continue during the biologically productive summer and fall months through the end of September.

8

Table 1.1 on page 8 of the DEIS should be corrected and better explained in the text. The established minimum flow in the Flathead River mainstem at Columbia Falls is 3.5 kcfs. This minimum flow was selected to protect river productivity and partially offset the impacts caused by the unnatural hydrograph during the remainder of the year. Table 1.1 erroneously includes a sliding scale for bull trout flows that ratchets down from 3.5 to 3.2, then down to 3 kcfs in the driest years. We understand that this was an error in the DEIS. While it is true that on one occasion, MFWP agreed with the operating agencies to reduce the minimum flow to 3.2 kcfs. MFWP did not intend this exception to be instituted for the long-term. The sliding scale should be changed to a minimum of 3.2 kcfs in the lowest 20th percentile water supply, but only with concurrence from Montana. In fact, river research shows that the bull trout minimum flow should be set at 4.5 to 5.0 kcfs during summer when water supply is average or higher (based on the wetted perimeter vs. discharge data) and 3.5 kcfs during drought, unless further adjustments are needed for overall system balance with natural resources. MFWP can provide wetted perimeter results that demonstrate that 3.5 kcfs is below the optimal flow level for fish. The absolute minimum flow in the Flathead River at Columbia Falls should be 3.2 kcfs. Conversely, when flows are extremely high, a portion of the protected, permanently wetted zone is scoured in the main channel (i.e. productivity is lost).

9

We agree with the tiered flow strategy for Kootenai white sturgeon in Figure 1.1, but disagree with the USFWS interpretation of the data pertaining to the requirements of white sturgeon and Libby Dam discharge. The DEIS evaluated two alternatives. The preferred alternative VARQ1 limits Libby Dam discharge to the existing turbine capacity, whereas VARQ2 that increases discharge by 10 kcfs in excess of turbine capacity. The DEIS states that there is no known way to release an additional 10 kcfs without violating Montana's water quality standards for gas saturation that limits gas supersaturation to 110 percent.

9

For this reason, we agree with VARQ1 and oppose VARQ2 that attempts to increase discharge to 10 kcfs.

10

The Montana Department of Environmental Quality (MDEQ) concurs with MFWP and emphasizes two points: 1) The spill test of 2000 underscores the fact that only a very small amount of spill at Libby Dam may occur without exceeding Montana's TDG water quality standard (MDEQ can only support a flow regime that fully meets the state water quality standards in the Kootenai and Flathead rivers), and 2) To minimize the potential of spill conditions at the Libby Dam or Hungry Horse Dam MDEQ supports the use of a sliding refill date to be incorporated into the preferred alternative VARQ1. It is the MDEQ's understanding that full power generation at both facilities is limited by transmission capabilities in the region. Coordinating the refill of both facilities according to the projected year's runoff will optimize reaching the desired recreational pool levels, minimize the potential for spill and exceeding total dissolved gas (TDG) standards and maximize power generation (i.e., no spill).

11

Page 27 Table 2-4 Water Quality. Discussion on water temperature effects should be further explained. Since selective withdrawal is not in operation during winter and reservoir structure is typically isothermal, we question how water temperature in the discharge can vary based on reservoir volume changes resulting from alternative flood control operations.

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Page 67. The document states: "The primary spawning tributaries for Kooconusa bull trout are the Ram and Wigwam rivers." This statement is not accurate. Bull trout are known to spawn in the Wigwam River (including Ram and Lodgepole creeks, which are tributaries within the Wigwam drainage). Substantial bull trout spawning also occurs in Graves, Skookumchuck, Redding, and Gold creeks, and the White River.

13

The last paragraph on page 67 also discusses Kootenai Falls and Libby Dam as potential bull trout barriers. While it is true that FWP documented a single radio tagged bull trout ascending the falls, results suggest that bull trout passage over Kootenai Falls is uncommon. MFWP considers Kootenai Falls as a substantial barrier for bull trout and all other resident species.

14

Page 70, the document states: "Prior to the construction of Libby Dam, redband trout likely did not occur upstream from Kootenai Falls, but they are currently present in Lake Kooconusa, and annually stocked from Murray Springs State Fish Hatchery." This statement is not accurate. Redband trout were historically present upstream of Kootenai Falls. Genetically pure redband trout still exist in upper Libby Creek, and the Fisher River system. Redbands may have also existed in Pipe Creek, however that population is currently hybridized with coastal rainbow trout. The best scientific evidence suggests that the historical redband trout distribution extended up to the present location of Libby Dam.

15

Page 138 and at several other locations throughout the document it discusses: "Discharges for sturgeon flows using up to the Libby Dam powerhouse capacity would likely inhibit

15

delta formations at spawning tributaries such as Quartz Creek, which would likely benefit bull trout access to those streams.” MFWP is not convinced that the range of flows discussed in any of the alternatives, but especially for those flows limited to powerhouse capacity, will inhibit the formation of deltas in those streams downstream of Libby Dam. Libby Dam has consistently operated at or near powerhouse capacity throughout any given year since the construction of Libby Dam, yet the deltas persist. However, we do acknowledge that the artificially higher flows that occur late in the summer for salmon augmentation may help bull trout access tributaries with deltas.

We appreciate the opportunity to provide comments and recommendations during the EIS process. If you require additional information, please contact Brian Marotz at 406-751-4546 or email: bmarotz@mt.gov.

Sincerely,



Chris Hunter  
Fisheries Division Administrator

C: Brian Marotz

**COMMENTER**

**RESPONSES**

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**HUNTER, CHRIS**

Montana Dept. of Fish, Wildlife and Parks

1. We are aware of Montana's position and the NPCC's Mainstem Amendments regarding the summer draft of Libby and Hungry Horse reservoirs, and double peaking. The operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden in the U.S. District of Oregon. Implementation of the Mainstem Amendment recommendations for Libby and Hungry Horse dams, is within the normal range of operations and the range of impacts analyzed in this EIS and other NEPA documents; therefore additional NEPA analysis would not be necessary if these recommendations are adopted as a result of the collaborative discussions.

2. Comment noted. While the modeling simulation reflects a potential double peak, in practice, the Corps will make every attempt to avoid or minimize this situation. Dam release releases will be "shaped" in real time to address requirements for fish and to meet flood control constraints as coordinated through the Technical Management Team (TMT).

3. Comment noted. This section of the EIS has been revised to read:  
*...While the current status of bull trout populations in the Kootenai and Flathead Rivers is generally better than some others in the Columbia River Basin, long-term monitoring has shown that bull trout populations in both watersheds have declined since construction of Libby and Hungry Horse dams. Kootenai River white sturgeon numbers are estimated at fewer than 500, down from numbers of 5,000 to 6,000 in the 1980s, and are declining at approximately 9 percent per year....*

The Corps and Reclamation will continue to provide minimum flows and ramping rates established to minimize impacts to bull trout below Libby and Hungry Horse dams.

4. We agree. Using real time management, there are ways to reduce the possibility of involuntary spill or overflow that are not available in the modeling assumptions. The intent is to manage the projects to avoid or minimize the possibility of these events occurring. A sentence has been added to Sec.3.3.2 indicating that a sliding refill date can help mitigate against involuntary spill.

5. To the extent possible, both Libby and Hungry Horse dams operate at their upper rule curves through the winter flood control draft period. To depict this, the hydro-regulation modeling assumptions for reservoir operations are consistent with flood control constraints and refill criteria considered in the NMFS 2004 Biological Opinion. It is important for the commenter to understand that in dry water years, inflow into the reservoirs is limited and the minimum outflow requirements for both Libby and Hungry Horse dams may result in an inability to maintain the reservoir at the upper flood control rule curves - this is reflected in the model results.

6. The subject text relates a factual statement about the content and conclusions of the 2000 USFWS biological opinion on operation of the Federal Columbia River Power System. Potential impacts to aquatic life, including resident fish in the rivers below the projects, are discussed in Sections 3.3.3 and 4.3.3, which note decreased river productivity related to low September flows that tend to occur under the current salmon flow augmentation structure. The 2006 USFWS BiOp addresses effects on listed bull trout from the operation of Libby Dam including the implementation of ramping rates and minimum bull trout flows.

7. Comment noted. We attempt to reduce the "double peak" between spring and summer operations in our real-time operation and incorporated assumptions in the hydroregulation modeling to avoid short-term flow fluctuations during transitions between different flow augmentation increments.

8. Comment noted. Table 1.1 has been corrected; see Appendix H for explanation.

**COMMENTER**

**RESPONSES**

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**HUNTER, CHRIS**

[CONT'D]

9. The Federal agencies recognize and share Montana's concerns about potential total dissolved gas (TDG) impacts. The preferred alternative, LVB, allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase TDG concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. This collaboratively developed Implementation Protocol is intended to assist the Federal agencies' discussions with the State of Montana concerning the TDG effects associated with spilling 10 kcfs. The Corps and the other Federal agencies are committed to working with the State of Montana to address these challenging issues.

You should be aware that the 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and provides the Corps and BPA with the flexibility to investigate and implement other means of achieving the necessary habitat attributes. While flow releases up to 35 kcfs out of Libby is one method to achieve some of the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

10. We agree that there are several ways to reduce the possibility of involuntary spill or overflow using real time management. Within season, through real-time management, we make adjustments including changes to the refill date.

Appendix L describes a sensitivity analysis of how transmission restrictions in the region relate to potential dam operations and water quality impacts.

11. Comment noted. Table 2-4 in Chapter 2 is a summary of the effects detailed in the Environmental Consequences sections in Chapters 3, 4, and 5; commenter should look to those sections for explanation of anticipated effects of alternatives. The Water Quality section for the Kootenai River in Chapter 3 has been revised to state that, although the reservoir volume during the winter may differ among the alternatives, these changes likely won't influence the water temperatures of Lake Koocanusa or Libby Dam releases.

12. Comment noted. Using the Northwest Power and Conservation Council's 2004 Kootenai River Subbasin Assessment as a reference, this section of the EIS has been revised to read: *The only known spawning and rearing area above the dam in the United States is located in Grave Creek. In British Columbia, spawning by migratory bull trout also occurs in the Wigwam River, White River, Bull River, St. Mary, and Lussier river drainages, and Skookumchuck, Gold, Kikomun, and Findlay Creeks (NPCC 2004a).*

13. This section of the EIS has been revised to read: *Libby Dam is a barrier to upstream bull trout migration. Although tracking studies have confirmed movement of one bull trout upstream over Kootenai Falls (Hoffman et al. 2002), the falls also presents a substantial barrier to upstream migration for bull trout and other resident fish species.*

14. The subject paragraph has been revised to read: *KTOI and MFWP (2004) provides detailed information on redband trout (*O. mykiss gairdneri*),*

COMMENTER

RESPONSES

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HUNTER, CHRIS

[CONT'D]

*a subspecies of rainbow trout (O. mykiss), in the Kootenai River basin. Redband trout currently occur throughout the Kootenai River basin, with genetically pure stocks in several tributaries. In the Kootenai mainstem, stocks have mixed with introduced hatchery rainbow trout. Studies have shown that stocks include resident, adfluvial, and fluvial life history forms. ~~Prior to construction of Libby Dam, redband trout likely did not occur upstream from Kootenai Falls, but they~~ Although their historical range did not likely extend upstream of the approximate location of Libby Dam (Hensler et al. 1996), redband trout are currently present in Lake Koocanusa and annually stocked from Murray Springs State Fish Hatchery. Columbia River redband trout generally spawn between March and June.*

15. The effects analysis for bull trout in Section 3.3.4 has been revised to incorporate this comment with the following specific revisions:

*3<sup>rd</sup> paragraph of the bull trout section: ...alternatives that tend to produce higher spring flows are considered beneficial in that higher peak flows ~~would likely minimize delta formation~~ may inhibit accretion of deltas at the mouths of important spawning tributaries in Montana and Idaho, most notably Quartz Creek just downstream from Libby Dam. Also, alternatives with higher flows during late summer may help bull trout access tributaries with deltas.*

*LS1 portion of bull trout section: ...Releases ~~Discharges~~ for sturgeon flows using up to Libby Dam powerhouse capacity ~~would likely~~ may inhibit accretion of deltas formation at the mouths of spawning tributaries such as Quartz Creek, which would likely benefit bull trout access to those stream. Flows under this or any other alternative would not likely result in erosion of any creek deltas.*

*LV1 portion of bull trout section: ...the ecological effects of LV1 on bull trout would also be similar (particularly regarding river productivity ~~and tributary access~~), although higher flows during the late summer due to more water available for salmon flow augmentation could help improve bull trout access to tributaries with deltas.*

*LS2/LV2/LVB portion of bull trout section: ...The higher sturgeon releases ~~discharges~~ from Libby Dam ~~would likely could help~~ inhibit delta formation at spawning tributaries such as Quartz Creek, which would likely benefit bull trout access to these streams.*

**From:** Sue Ireland  
**Sent:** Wednesday, January 18, 2006 10:43 AM  
**To:** Laufle, Jeffrey C NWS  
**Cc:** Billy Barquin; Jennifer Porter; Kym Cooper; Gary Sr. Aitken  
**Subject:** Kootenai Tribe Comments on Draft EIS

Hello Jeff: As per our conversation and at the direction of the Kootenai Tribal Council, I am sending you this e-mail to be included as part of the record for comments from the Kootenai Tribe of Idaho on the Draft VARQ EIS.

We appreciate the opportunity to comment on the Draft Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement. We congratulate the US Army Corps and Bureau of Reclamation on their comprehensive evaluation of a very complex problem. The preferred alternatives are generally consistent with the intent of the Integrated Rule Curves and NPCC Mainstem Amendments, however, important differences remain that must be addressed in the final EIS.

1 { Specifically, the alternatives with fish flows assume a 20 foot summer draft in all years as per the NOAA-Fisheries Biological Opinion summarized on pages 5 and 6 of the DEIS. This summertime draft target is being contested by Montana on scientific and legal grounds because of known impacts to native resident fish. The Kootenai Tribe agrees with Montana's position on the summertime draft target. A paragraph on page 6, end of sec. 1.4.1 of the DEIS references subsequent changes to salmon flow augmentation addressed by the Northwest Power and Conservation Council's Mainstem Amendments and states these deliberations are beyond the scope of the EIS. Nonetheless, our comments specifically address the operations necessary to protect and enhance resident fish in Libby Reservoir and the Kootenai River downstream. Plots of discharge resulting from the alternatives with fish flows represent a modeling artifact that shows a spring freshet followed by a flow reduction, then a second pulse for anadromous fish flow augmentation. Although the model results are volumetrically correct, in reality the discharges should be normalized and smoothed to avoid inadvertent damages to ESA-listed resident fish. Dam discharge should not have a "double peak" as shown, but rather a gradual decline from the spring freshet (within flood constraints) toward a "flat" stable flow or gradually declining flow through the end of September. We agree with the operating agency's rationale on page 8 to maintain or gradually transition flows to reduce short-term flow reductions that dewater habitat between the spring freshet and summer flows. Stable flows should continue during the biologically productive summer and fall months through the end of September.

2 {

3 { We would also like to comment on the tiered flow strategy for Kootenai white sturgeon in Figure 1.1. The DEIS evaluated two alternatives. The preferred alternative VARQ1 limits Libby Dam discharge to the existing turbine capacity, whereas VARQ2 that increases discharge by 10 kcfs in excess of turbine capacity. Due to several contentious issues associated with the implementation of VARQ2, we recommend that a collaborative discussion between Montana, Idaho, the Tribe, and the federal agencies take place before any determination is made about the VARQ2 alternative.

Please contact Sue Ireland, KTOI Fish and Wildlife Program Manager, if you have any questions regarding our comments. Thank you.

Susan Ireland, Fish and Wildlife Program Director  
Kootenai Tribe of Idaho  
PO Box 1269  
Bonners Ferry, ID 83805

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**COMMENTER**

**RESPONSES**

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**IRELAND, SUE**

Kootenai Tribe of Idaho

1. The Northwest Power and Conservation Council's Fish and Wildlife Program and Mainstem Amendments recommendations for summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows extending into September with a 10 foot draft limit in most years, differ from the operations considered in the 2004 NOAA Fisheries' Biological Opinion. However, the operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. The summer operations recommended in the Mainstem Amendments for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents. Therefore, no further NEPA analysis would be needed if these recommendations are recommended in the Biological Opinion developed by NOAA Fisheries through this collaborative remand process and adopted at a later date

2. The "double peak" is indeed a product of the modeling, and we know that the actual shaping of flows in real time operation will be used to avoid or minimize double peaking. This is addressed in the EIS.

3. We appreciate the continued interest and support of the Kootenai Tribe of Idaho on Libby operations and efforts to recover listed white sturgeon. We are aware of the issues associated with implementation of VARQ FC with flows above powerhouse capacity. The preferred alternative identified for Libby Dam operation in the Final EIS, LVB, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative. LVB provides for a normative hydrograph by releasing up to 35 kcfs, pending appropriate water conditions, from Libby Dam to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Because the only means currently available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill, which will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation, the Corps, BPA, and the USFWS are coordinating with the State of Montana.

The Corps is also pleased to be working with the Kootenai Tribe of Idaho, the Confederated Salish-Kootenai Tribe, the States of Idaho and Montana, Canada, USGS, USFWS and BPA on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. A parameter established in this Protocol is that the Corps will not voluntarily exceed elevation 1764 feet at Bonners Ferry. The RPA in the 2006 USFWS Biological Opinion recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for the attributes. While release of flows up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.



Kootenay Lake  
Chamber of Commerce  
Box 120, Crawford Bay, BC  
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[info@kootenaylake.bc.ca](mailto:info@kootenaylake.bc.ca)

21 December 2005

U.S. Army Corps of Engineers, Seattle District  
Attn: Mr. Evan Lewis, PM-PL-ER  
P.O. Box 3755  
Seattle, WA 98124-3755

Re: Upper Columbia Alternative Flood Control and Fish Operations (VARQ)  
Comments for Environmental Impact Statement Review

Members of the Kootenay Lake Chamber of Commerce wish to convey a number of concerns about potential long term economic impacts of the VARQ operation on residents and businesses along Kootenay Lake.

1 Generally, data from the modelling of the VARQ operation indicates that the water level on Kootenay Lake will be about 1 foot higher during high water and one or more feet lower during low water every few years as a result of the VARQ operation compared to what levels would occur with the same runoff controlled by the standard flood control operation. In addition, the durations of the highest and lowest water levels will be extended, perhaps for weeks, beyond the durations of extreme lake levels under the standard floor control operation.

2 These scenarios can be expected to result in more damage on average to docks, breakwaters and other structures located along the lakefront. Currently, the worst damage occurs during storms while water levels are relatively high. Severe storms coinciding with high water levels will become more likely with higher levels and is compounded by extending the duration of high water, even if the high water is not record breaking or what may normally be considered flood levels.

3 Low water levels limit the use of several marinas and boat ramps along the lake. The lower the levels on average, the less useable days per year. Extending the duration of low water, again not even at extreme low levels, has a negative impact on useable days per year. The most predictable economic loss in the short term will be from boaters from Alberta, who traditionally bring their boats out of winter storage and tow them to Kootenay Lake during their spring break (Easter). When water levels are lower than what their craft requires they will not be able to put their boats in and moor at their marina of choice. This problem occurs now at extreme low water. The result is that, based on lake levels leading up to their spring break, some boaters will opt to defer their visit. This shortens the marina rental year. In the worst case, a number of years of unfavourable conditions in the spring when many families take their first yearly vacation may result in those families looking for other lakes to use as their base of operations.

**Travel a little further ... rediscover awe!**  
[www.kootenaylake.bc.ca](http://www.kootenaylake.bc.ca)

4

Beaches along Kootenay Lake range from fine sand to rock. Most waterfront properties (private and commercial) have relatively limited beaches. During high water, which coincides with peak beach going tourist season, the most desirable areas of some beaches are flooded. Again, the higher the water and the longer the duration of high water the greater the negative impact. In addition, fluctuations in the lake level wash more debris into the water, creating hazards for boaters and degrading the beaches. The VARQ operation appears to predict more fluctuations in lake levels through the summer months.

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Fluctuations in lake level and reflooding of areas along the shoreline in summer months will promote more mosquito hatchings. Impacts are both economic, as the beach areas will be less desirable, and health related as West Nile virus or other mosquito carried diseases spread.

6

The above issues are not expected to result in rapid economic losses, but over the course of years the impacts may compound significantly. In addition, the modelling for the VARQ operation was based on historical runoff records, which may not well represent future runoff given changing climatic conditions.

7

The Kootenay Lake Chamber of Commerce is looking for a commitment to continue to study the impacts of VARQ over the coming years and to maintain a dialogue with our lake communities.

Yours truly,



Garry Jackman  
President, Kootenay Lake Chamber of Commerce

Cc: Jim Abbott  
Member of Parliament  
Kootenay - Columbia  
Fax: (250) 417-2253

Corky Evans  
MLA Nelson-Creston

Verna Mayers Mackenzie  
Regional Director, RDCK Area A Wynndel and East Shore Kootenay Lake  
Fax: (250) 223-8475

**COMMENTER**

**RESPONSES**

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**JACKMAN, GARRY**

Kootenay Lake  
Chamber of  
Commerce

1. The differences noted in the comment are not supported by the modeling results presented in the EIS. In general, the simulations showed that likelihood of a specific annual peak Kootenay Lake elevation would be very similar for both Standard FC and VARQ FC operations given the same fish flow operation (see Figure 3-16).

With regard to peak lake elevation, the modeling simulations show the durations of extreme high Kootenay Lake levels are very similar under all of the alternatives. Compared to the Standard FC alternatives, the simulations indicate that the most pronounced increase in duration at a given lake elevation would be during May when the lake would likely be between about 1744 feet and 1747 feet - about 12 percent longer (or slightly less than 4 days) with the VARQ FC alternatives. In June and July, the greatest increase in duration that the lake would be at a given elevation would be no more than about 3 days longer (comparing lake elevations at or greater than 1750 feet between LV2 and LS1). The level of Kootenay Lake is lowest at the end of March.

New figures have been added to the Kootenay Lake portion of Section 3.3.1 that shows elevation-duration curves for the early spring and demonstrates that there is no difference between the alternatives when Kootenay Lake is low. Average lake levels with LVB, the preferred alternative in the Final EIS, would fall in the range between LV1 and LV2.

2. Examination of Figure 3-16 shows a slightly increased likelihood of Kootenay Lake being above any given elevation during May-July when comparing LV1 to LS1, and the same for LV2 compared to LS2, based on model results. Average lake levels under LVB would fall in the range between LV1 and LV2. Tables 3-15 and 3-16 also indicate small differences among alternatives, but do suggest that lake levels would tend to be higher under the VARQ FC alternatives. We are revising Section 3.3.12 to state that the likelihood of storm damage to overwater structures would be slightly higher when with higher lake levels under VARQ alternatives.

3. See Response to Comment 1. The period between 22 March and 25 April was used to construct early spring elevation-duration curves for Kootenay Lake (Figure 3-17). This information has been added to the final EIS and shows that lake levels during the early spring would be very similar under all the alternatives.

4. The EIS documents slightly fewer days within the optimal range for summer recreation at Kootenay Lake (see Table 3-22), which includes a slight decrease in swimming days as peak lake levels increase. Fluctuations of Kootenay Lake level during the summer are somewhat independent of the different Libby Dam alternatives and depend primarily on regulation of the lake level at Corra Linn Dam or Grohman Narrows as defined during the late summer by the International Joint Commission Order of 1938.

5. Under all the alternatives, Kootenay Lake levels tend to peak in the late spring/early summer, then gradually recede through July and most of August. Although the peak lake elevation would tend to be higher under alternatives with higher sturgeon flow outflow from Libby Dam, the different alternatives don't tend to increase fluctuation of the level of Kootenay Lake as the lake elevation decreases during the summer. In wetter years, mosquito problems would be more evident regardless of dam operations. Since Kootenay Lake shoreline will provide ample habitat for mosquitoes regardless of lake operations, we do not believe that the potential for West Nile Virus or other mosquito-borne diseases under any of the alternatives increases risks to safety, health, or tourism for the Kootenay Lake region. British Columbia has produced plans and programs for monitoring for West Nile Virus and reacting to outbreaks through established public health avenues (refer to the West Nile Virus websites of the BC Centre for Disease Control and BC Ministry of Health at <http://www.bccdc.org/topic.php?item=110> and <http://www.healthservices.gov.bc.ca/pho/wnv.html>, respectively).

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**COMMENTER**

**RESPONSES**

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**JACKMAN, GARRY**

[CONT'D]

6. Our analysis shows that the different alternatives do not vary substantially in the duration of time that Kootenay Lake is within the optimal range for recreational use, and conclude that socioeconomic impacts from tourism would likely be very similar across all alternatives. The period of record used for the modeling encompasses a wide variety of years in terms of snowfall and precipitation amount and timing and runoff duration and magnitude. Assuming that the period of record sufficiently represents what can be expected in the future, the simulations provide a means for testing how Kootenay Lake levels respond to each alternative. Runoff forecast methodology is periodically reviewed and updated to improve management of reservoirs. Future changes in forecast methodology would further improve the Corps' ability to manage system operations, which could potentially be a result effectuated by climactic changes.

7. The Corps plans to continue coordinating with the communities around Kootenay Lake on changes that occur with changes in Libby Dam operations. We welcome requests for information that we may have, and are interested in any information that may be offered by specialists or experts in Canada. The Corps participates in several interagency groups, which affords us an opportunity hear input regarding all aspects of Libby Dam operation and ecosystem recovery efforts which may have cross-border effects. In addition to this EIS process, we have ongoing technical transboundary coordination with our counterparts in British Columbia concerning biological and ecosystem issues. For instance, we participate in the Transboundary Gas Group, the Kootenai River White Sturgeon Recovery Team and the International Kootenai Ecosystem Restoration Team.

Kalispell Public Meeting, November 29, 2005

4 MR. ROACHE: Next is Verdell Jackson.

5 MR. JACKSON: I'm Verdell Jackson, state  
6 representative, House District 6, Kalispell. My  
7 concerns would be maybe three. Lake level seems to be  
8 okay. That would be one of my concerns. Flood control  
9 is another one. That looks all right.

10 Local fisheries, our economy depends a lot on  
11 fishing here in the Flathead, so the local -- the  
12 health of the local fisheries is of great concern to  
13 us, and I'm not sure about that. I do know there's  
14 favorable results from temperature control, but -- and  
15 I've read quite a bit on that, but I haven't seen  
16 documentation on augmentation as having a significant  
17 impact on salmon. So local fisheries are still a  
18 concern of mine.

19 And the cost of electricity is another  
20 concern. I'm trying to remember the research that I've  
21 done, but, in terms of the Clark Fork River at Avista,  
22 there's 20-million acre feet a year that goes by that  
23 dam. And when Hungry Horse was built, they took the  
24 high flows of the two months, June and July, and  
25 distributed it over nine other months. And it did have

1 a huge impact on fish in periods of low flows, because  
2 there was more flow during those months, because nine  
3 months were augmented.

4 So I think we need to make sure that we're  
5 not counterproductive in other areas just to help the  
6 salmon. We have to look at the whole picture, and,  
7 until I get through the CD, I won't know whether you've  
8 looked at the whole picture or not.

9 The impact of Hungry Horse is tremendous.  
10 There's 20-million acre feet of water coming down the  
11 Clark Fork River through Avista. And, if my memory  
12 serves me right, Hungry Horse is able to take at least  
13 a million acre feet that had been spilled prior to the  
14 building of Hungry Horse. After Hungry Horse was  
15 built, probably that spill was reduced by 75 percent or  
16 something like that, but I can look at the CD and  
17 see -- have an idea what that impact would be.

18 It seems to me that 13-million figure for the  
19 whole system would not be accurate. Avista has \$2  
20 billion worth of sales each year, so we're talking  
21 about a huge amount of money that's generated by the  
22 entire system, and I would be looking to see if the  
23 cost to the ratepayers may be higher than that.

24 Thank you.

25 MR. LECHEFSKY: Thank you.

**COMMENTER**

**RESPONSES**

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**JACKSON, VERDELL**

Montana House of Representatives

Draft EIS Public Meeting, Nov 29, 2005, Kalispell, MT (transcript)

1. Implementation of VARQ would likely benefit resident fish, especially those in Hungry Horse reservoir and immediately downstream from Hungry Horse Dam. More details can be found in Sec. 4.3.3 of the Final EIS. The preferred alternative (HV) should benefit bull trout in the Flathead River as noted in section 4.3.4 in the Final EIS.

We recognize the lack of certainty concerning the biological benefit of the flow augmentation. Our analysis of flow augmentation for anadromous fish in the EIS was based on the ability to meet flow objectives at Priest Rapids and McNary dams for smolt outmigration as defined in the Action Agencies' 2004 Updated Proposed Action as considered in the 2004 NOAA Fisheries Biological Opinion. The Independent Scientific Advisory Board for the Northwest Power and Conservation Council indicated in 2004 that there is no clear relationship between increasing summer flow and improving salmonid survival. The issue of flow augmentation and supporting science is being discussed in the collaborative remand process ordered by Judge Redden in the US District Court of Oregon.

2. We do not believe effects of the alternatives are discernible among the suite of factors that govern power rates. The EIS includes a statement concerning potential changes in rates in Sec. 5.3.13: "The overall change in generation varies depending on alternative combinations from a slight decrease to slight increase. These changes are very small relative to the entire system generation and will likely have no discernible impact on power rates."

-----Original Message-----

From: Carole James  
Sent: Tuesday, December 27, 2005 12:59 PM  
To: Upper Columbia EIS  
Subject: Comments on DEIS

To: Evan Lewis  
Environmental Resources Section  
U.S. Army Corp of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755

From: Carole James, President  
National Organization to Save Flathead Lake P.O. Box 1834 Bigfork, MT 59911

December 27, 2005  
Via e-mail

RE: Comments on the November 2005 Draft Environmental Impact Statement for the Upper Columbia Alternative Flood Control and Fish Operations.

Dear Mr. Lewis,

I want to thank you for the opportunity to submit comments upon the November 2005 Draft Environmental Impact Statement (DEIS) for the Upper Columbia Alternative Flood Control and Fish Operations.

I offer these comments on behalf of the 900 plus property and business owners who currently comprise the membership of the National Organization to Save Flathead Lake. We are a non-profit, non-partisan, volunteer run organization that has neither professional nor technical capabilities. We do however, attempt to maintain an interest in, and where appropriate, participate in the many federal and state processes that impact the operations of the headwaters of the upper Columbia River system. More specifically, we become involved in any action that could impact the water levels and flows of Flathead Lake that would result in ramifications to its social, economic and ecological environment.

Over the past several years, this organization together with several associated groups, local and state governments, and countless other interested parties, have developed serious concerns about the management and operation of the federal storage waters in Montana.

1 { In this instance, we write to support the adoption of the VARQ flood control proposal for Hungry Horse dam. It is our belief that this operating regimen, as outlined in the DEIS, will further the interests of federally protected fish in the Flathead drainage and provide the basis for more enlightened management of the reservoir while still accomplishing the Corps<sup>1</sup> primary flood control objectives.

2 { We are pleased to see that the implementation of VARQ at Hungry Horse will improve the probability of refill at Flathead Lake, however, we are disheartened that it will not provide the much needed benefits to Flathead Lake during severe drought conditions. We continue to encourage the Corps to give equal and due consideration to the social, economic and environmental impacts of Flathead Lake in any and all changes to the system.

3 { Additionally, we continue to plead for a greater coordination between Hungry Horse and Kerr Dams and their respective governing agencies, and believe there is indeed, a historic precedence for the waters of the South Fork of

3 { the Flathead River in maintaining usable lake levels for Flathead Lake's recreation season during low water years, while at the same time sustaining minimum flows for the lower Flathead River.

4 { In essence we think the proposal represents a good, common sense improvement over the previous operating system and commend the Corps of Engineers for their diligent work on this DEIS.

Sincerely,

Carole James, President  
National Organization to Save Flathead Lake P.O. Box 1834 Bigfork, MT 59911

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**COMMENTER**

**RESPONSES**

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**JAMES, CAROLE**

National  
Organization to  
Save Flathead  
Lake

1. Comment acknowledged. Thank you.
2. Operation to assure higher refill levels at Flathead Lake is outside the scope of this EIS. The Implementation of VARQ will not help refill at Flathead Lake during severe drought conditions nor will it hurt flows into Flathead Lake compared to the previous Standard Flood Control plan. Reclamation has worked with interested parties to improve conditions at Flathead Lake during severe drought conditions. For example during the severe drought of 2001, Reclamation worked with PPL Montana, NOAA Fisheries, the State of Montana and others to shape salmon augmentation flows from Hungry Horse during the summer to limit the impact on summer Flathead Lake levels and flows below Flathead Lake.
3. Maintaining usable lake levels for recreation on Flathead Lake is outside the scope of this EIS. Reclamation has coordinated Hungry Horse operations with PPL Montana and others through a variety of forums, and will continue to do so. These include project operation coordination calls that occur at least monthly and usually more frequently during critical times of the year with other agencies, including the Army Corps of Engineers. Reclamation is also a cooperating agency in the development of the Flathead Lake Drought Management plan. This process is expected to continue until the final Drought Management Plan is adopted for Flathead Lake.
4. Comment noted—thank you. Note that the Bureau of Reclamation operates Hungry Horse Dam, and is a cooperating agency in this EIS.

Kelvin Ketchum, BC Hydro  
6911 South Point Drive, Burnaby, B.C.  
Draft EIS Public Meeting, Nov 28, 2005, Nelson, BC  
(transcript)

KELVIN KETCHUM: So, thanks for coming up. I appreciate you coming up here anyways and talking to us because we haven't really had a whole lot of time to review the report but –  
[INTERRUPTIONS FROM OTHERS DELETED]

1 { So, B.C. Hydro's the Canadian entity under the Treaty, so our two chief concerns are power and flood control. Um, we're -- we are working with the Corps in Portland to -- on the power impact. I guess first off we know there will be power impacts in Canada. Of the three years of interim VARQ operation really the first year there was absolutely no difference in the water levels, second year there was a small difference, but it really translated into a negligible power change. This year, 2005, we did see a fairly large significant loss of power, basically additional spill on the Kootenay system. Certainly the Corps in Portland's aware of that. We're working with them to make sure we've got the right analysis done, and if a permanent EIS or permanent decision is made, because I'm fairly confident we'll be able to work with the Corps to come up with a method to compensate Canada for the power losses, so I guess the concern is that there will be power losses. I guess we believe that we will be able to do something like we did under the Libby Coordination Agreement to get agreement to compensate Canada, and that would be, you know, all of the power operators. So I know, Llewellyn, you mentioned we need -- you're concerned from CPC, obviously you should be. That's something B.C. Hydro and CPC will certainly talk about. We'll make sure if we're compensated that we'll certainly give Llewellyn his fair share as well.

[INTERRUPTIONS FROM OTHERS DELETED]

2 { As a Canadian entity, we have to work on behalf of all of the Canadian interests, certainly on the power and flood control side. So I guess on the flood control side, I guess we acknowledge that the flood control rules, you know, even with VARQ's, it's still better than no dam, no question there. And the Treaty Flood Control Plan specifies a level of 1755 as the start of -- as a start of damage, and just briefly looking through your report, so there's really no impact -- there appears to be no impact above 1755. But we've done some studies and we did a joint study with CPC, Fortis and a few others, CBT maybe as well, that did look at flood damages and we do know that there's some damage at least down in the 1752 and possibly down to 1750. I'm not sure, Harry's the expert on that, he might talk a bit more on that. I guess the concern on the flood control side is that we see that there's a higher frequency of levels between 1750 and 1755, so, you know, not the huge flooding impacts but the definite flooding impacts in Canada would happen with higher frequency, and that's a concern for Canada. I'm not sure how that will be addressed.

3 { Definitely there's other impacts on both the East Kootenays and West Kootenays, some positive, some negative. So, I'm not the expert on other things, I'll let other people talk about that, but on the -- so I think I mentioned the power and flood control. I definitely support what Sue and Kindy said about some sort of formal review process. It needs to be easy, I guess, it has to be. The way we've done it in the Water Use Planning process is there's a five-year or 10-year, I think in one case a 13-year review period, but at least it's there. The default is after 10 years we're going to get back together again and talk about it again, and I support that kind of formal review process. It's got to be an easy thing. Okay. I think that's my comments.

**COMMENTER**

**RESPONSES**

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**KETCHUM, KELVIN**

BC Hydro

Draft EIS Public Meeting, Nov 28, 2005, Nelson, BC (transcript)

1. We have incorporated BC Hydro's analysis of potential power impacts and information concerning the different alternative operations at Libby Dam into the Hydropower and Socioeconomic sections in Chapter 5 of the final EIS. We have also added a section discussing potential mitigation for hydropower impacts in Canada, relating to development of the Columbia River and past changes in Libby Dam operations. For purposes of transboundary impacts (i.e. those in Canada), we rely on existing information supplied by affected stakeholders. As you note, compensation issues are matters appropriately addressed through established Columbia River Treaty processes.
2. The EIS acknowledges that the risk of flood damages along the West Arm of Kootenay Lake could increase slightly under Alternatives LV1, LS2, LV2, LSB, and LVB in relation to the no-action alternative of LS1. These impacts result primarily from development encroaching below 1755 feet elevation, the lake level where the 1972 Columbia River Treaty Flood Control Operating Plan states that damage begins. Information received from Canadian interests on the Kootenay Lake impacts has been incorporated into the EIS. Libby Dam operations, even with changes proposed under any of the alternatives, provide a substantial reduction in flood damages compared to pre-dam conditions. The EIS has been revised to identify potential options for avoiding or minimizing flooding impacts along Kootenay Lake.
3. Comment noted. As you are aware, formal processes for coordination are in place, including those under the Libby Coordination Agreement and transboundary groups, such as the Kootenay Lake Board of Control, the Columbia River Treaty Operating Committee, and the Kootenai River White Sturgeon Recovery Team. We note your comment concerning potential improvements in coordination with the general public in Canada and, in the context of routine Libby Dam operations, are investigating ways to invite public participation and education on Libby Dam issues of potential interest in Canada.

Kelvin J. Ketchum, P.Eng.  
Portfolio Management

3 January 2006

Mr. Evan Lewis, PM-PL-ER  
US Army Corps of Engineers, Seattle District  
P.O. Box 3755  
Seattle, WA 98124-3755

Dear Mr. Lewis:

This letter is in response to the request for comments contained in the Draft Environmental Impact Statement (DEIS) for Upper Columbia Alternative Flood Control (VARQ) and Fish Operations at Libby and Hungry Horse dams, which was released in early November 2005. BC Hydro has reviewed the DEIS and other relevant data provided by the US Army Corps of Engineers, and has the following comments on the impact of the proposed operations on flood control and power generation in British Columbia (BC), Canada. With respect to environmental and socio-economic impacts, BC Hydro has agreed to coordinate its comments with the Province of BC; comments in these areas will be forwarded by the appropriate government agencies and other Canadian stakeholders.

Impacts on flood control within Canada:

- Based on our review of the proposed VARQ storage reservation diagrams for Libby Dam, the primary change between Standard Flood Control (FC) and VARQ FC appears to be the increase in inflow forecasts required to trigger a given flood control storage reservation volume. Put another way, for a range of inflow forecasts slightly above and slightly below average, VARQ reserves less flood control space and therefore provides less flood control protection for downstream locations. While the reduced flood control protection from Libby is partially offset by an increase in flood control protection from Grand Coulee, this helps only those areas located downstream of Grand Coulee, and leaves the Kootenai / Kootenay River basin below Libby, and the Columbia River basin between Castlegar and Lake Roosevelt, less protected as compared to the Standard FC that was in effect prior to the interim implementation of VARQ in January 2003.

- The expected reduction in flood protection downstream of Libby is documented in a number of locations in the DEIS;

➤ Section 3.3.1, Bonners Ferry (p.103):

*“Compared to LS1, LV1 would tend to increase the likelihood of peak Bonners Ferry river stages between 1756 and 1764 feet. For example, for any fixed percent chance exceedance between 30 and 90 percent, the peak stage would be about one foot higher under LV1 compared to LS1.”*

- Section 3.3.1, Kootenay Lake to Confluence with Columbia River (p.107):

*“Under LV1, the likelihood of a given Kootenay Lake peak elevation would be similar but slightly higher than that for LS1, but lower than either LS2 or LV2. The slight difference between LV1 and LS1 would diminish further at higher peak lake elevations as the curves converge for rare, low percent chance exceedance events. From May through July, LV1 would consistently produce higher lake levels than any of the Standard FC alternatives ..., except for lake elevations above about 1749 feet in June, where LS2 would result in slightly higher lake elevations.”*

- Section 3.3.1, Figure 3-14 (p.109):

This elevation-frequency analysis for Kootenay Lake demonstrates that the likelihood of the peak May-July lake level being above El. 1750 ft is about 46% under LS1 and increases to about 56% under LV1. For a lake level of El. 1752 ft, these values are 18% and 22%, respectively, and for a lake level of El. 1754.4 ft, the values are slightly below 2% for both flood control schemes. In other words, adoption of VARQ FC instead of Standard FC is expected to lead to a higher frequency of Kootenay Lake levels between elevations 1750 ft and 1754.4 ft. During the period 1996-99, several peak lake levels within this range were experienced, and damage to Canadian property did occur. While the Columbia River Treaty Flood Control Operating Plan notes that *“Damage commences at Nelson when Kootenay Lake reaches elevation 1755 feet...”*, we believe that this *“onset of damage”* level is now out-of-date and have recently done studies to update the stage-damage relationship for Kootenay Lake. Under separate cover (22 Dec 2005), Mr. Harry Brownlow has sent you a memo outlining the current estimated stage-damage relationship for the west arm of Kootenay Lake. (Note that this memo does not document damage from high lake levels expected at other sites on Kootenay Lake and Kootenay River.) Canada does expect to see more frequent occurrences of flooding damage with implementation of VARQ FC compared with Standard FC.

- Section 5.3.1, Flood Control Upstream From Grand Coulee Dam (p.341-2):

Table 5-14 in this section illustrates that, for the Columbia River at Birchbank (near Trail, BC), operations under Libby VARQ FC are expected to produce higher peak daily discharges than the Standard FC procedure for exceedance frequencies between 1% and 99%. For example, at an exceedance frequency of 10%, the peak 1-day discharge increases from 208.4 kcfs under Standard FC to 217.6 kcfs under VARQ FC. At an exceedance frequency of 2%, these values are 239 and 242 kcfs, respectively. Canada does expect to see significant damage whenever river flows at Birchbank/Trail exceed 225 kcfs (ref. Columbia River Treaty Flood Control Operating Plan). During the 1990's, some flooding impacts were also noted at discharges in the 160-165 kcfs range (anecdotal information). Adoption of the Libby VARQ FC procedure is thus expected to result in a higher frequency of flood damage on the Columbia River in Canada.

#### Impacts on hydroelectric generation within Canada:

- It is our understanding that under the U.S. National Environmental Policy Act (NEPA), the DEIS is required to include monetary and social impacts in Canada. We note that the draft report does not appear to include a discussion of Canadian power impacts associated with VARQ FC.

2

- We have completed a number of detailed model studies of the Kootenay basin to estimate Canadian power impacts associated with the proposed Libby VARQ FC operation. These impacts are derived from both a shift of generation into lower value periods, and a reduction in generation due to increased spill. While the annual variations of the impacts are large, the increased sturgeon and salmon flows facilitated by the revised flood control operation would reduce the expected Canadian generation downstream of Libby, on average, by approximately 80 GWh per year, for an annual value loss in the order of C\$ 6 to 8 million. The interim implementation of Libby VARQ FC during 2005 resulted in actual Canadian energy losses documented at approximately C\$ 4 to 5 million relative to Libby operations under Standard FC.
- Operation of Hungry Horse under VARQ FC procedures is expected to result in reduced Pend d'Oreille River flows during the January-April period and increased flows (by an average of 2 to 3 kcfs) during June (Fig. 4-28, p. 270). Since Canadian projects on the Pend d'Oreille River (Seven Mile, Waneta, and the proposed Waneta Expansion) usually have unused turbine capacity during the Jan-Apr period and are usually spilling (i.e. have no unused turbine capacity) during June, the adoption of VARQ FC for Hungry Horse will result in reduced hydro generation and more spill in Canada. Our very rough estimate of the annual average generation losses at Canadian hydro projects on the Pend d'Oreille River is 50 to 60 GWh per year, valued in the order of C\$ 4 to 6 million per year.

As documented above, the proposed VARQ FC operation for both Libby and Hungry Horse presents impacts to both flood control and power generation in Canada.

3

Under the Columbia River Treaty Flood Control Operating Plan, it is acknowledged that, "*The purpose of including Libby Reservoir in the Flood Control Operating Plan is **to meet the Treaty requirement to coordinate its operation for flood control protection in Canada.***" [emphasis added] Additionally, the Treaty requires the Entities to "*cooperate on a continuing basis to coordinate the operation of [Libby] with the operation of hydroelectric plants on the Kootenay River... in accordance with the provisions of Article XII(5) and Article XII(6) of the Treaty.*" This coordination obligation is further acknowledged in the Libby Coordination Agreement signed in February 2000.

4

In its capacity as the Canadian Entity under the Columbia River Treaty, BC Hydro requests that implementation of the Libby VARQ operation be deferred until the Entities have agreed on a method to address the power and flood control impacts in Canada. BC Hydro is continuing to review the Treaty implications of the proposed reduction in flood control protection and the resulting power losses associated with the Libby VARQ operation, and will discuss these concerns with the U.S. Entity.

Please advise if additional background material or detail is required on any of the points raised above.

Yours truly,



Kelvin Ketchum, P.Eng.  
Chair, Canadian Section,  
Columbia River Treaty Operating Committee

cc Rick Pendergrass, BPA, US Co-Chair CRTOC  
James Barton, Corps of Engineers, US Co-Chair CRTOC  
Tony White, BPA, U.S. Entity Secretary  
Cathy Hlebechuk, Corps of Engineers, CRTOC  
John Hyde, BPA, CRTOC  
Cindy Henriksen, Corps of Engineers  
David Grace, BC Ministry of Environment  
Dan Millar, Environment Canada  
Bruce Duncan, CPC  
Wally Koschik, FortisBC  
Richard Deane, Cominco  
Kindy Gosal, CBT

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**COMMENTER**

**RESPONSES**

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**KETCHUM, KELVIN**

BC Hydro

1. We have incorporated into the Final EIS stage-damage information for the West Arm of Kootenay Lake which we received from BC Hydro following release of the draft EIS. Considerations concerning the possibility of flood damages below Kootenay Lake elevation 1755 feet would be subject to negotiations and coordination between the U.S. and Canadian Entities pursuant to the Columbia River Treaty and related processes, including future flood control operating plans.

We believe that under the preferred alternative, LVB, including the ability to manage operations in real time, the level of flood protection is maintained, based on operation not to exceed an elevation of 1764' at Bonners Ferry (as the commenter states regarding Sec. 3.3.1). We acknowledge that the frequency of reaching a given stage below flood level may increase under VARQ; however, the likelihood of exceeding current flood stages is not increased. The small differences in river flow described for the Columbia River at Birchbank, British Columbia are derived from the hydroregulation modeling, which is intended to provide information on alternative operations. However, in real-time management of Libby Dam operations, there is flexibility to address these concerns.

2. NEPA requires agencies to include analyses of reasonably foreseeable transboundary effects of proposed actions using reasonably available information. Accordingly, the EIS evaluates impacts in Canada based on information provided by Canadian stakeholders. We have reviewed the analysis of impacts to Canadian hydropower generation and economic return and updated the EIS to reflect this information. The Final EIS also includes Canadian power generation impacts from results of the system hydropower generation modeling described in Section 5.3.2. To summarize, the Corps' analysis indicates that the annual reduction in hydropower generation for Canadian projects on the Kootenay River would be about 125 gigawatt-hours (GWh) for Alternative LV1 compared to Alternative LS1 (compared to 80 GWh of reduction provided in the BC Hydro comment letter). The change in hydropower generation for Canadian projects with LVB will vary depending on the water supply and power market conditions in any given year, and is expected to fall within a range between those analyzed for LV1 and LV2.

For Canadian projects on the Pend d'Oreille River, the Corps' analysis shows an annual reduction in power generation of 36 GWh for Alternative HV compared to Alternative HS (compared to a reduction of 50 to 60 GWh provided in the BC Hydro comment letter). For consistency with the other hydropower generation discussions, the Final EIS presents hydropower generation in megawatts averaged over specified time periods (rather than GWh).

3. Members of the staff of the U.S. Entity have begun technical discussions of VARQ with members of the staff of the Canadian Entity at Columbia River Treaty Operating Committee meetings, and additional discussions are planned. It is expected that the Libby VARQ will also be the subject of consultations between the U.S. Entity and the Canadian Entity under the terms of the Libby Coordination Agreement and the provisions of the Columbia River Treaty. The Corps is continuing to operate Libby Dam in a manner consistent with its obligations under the Treaty, the Libby Coordination Agreement, and the 1938 the International Joint Commission (IJC) Order on the operation of Kootenay Lake. Pursuant to NEPA, we will continue to engage with Canadian interests regarding related issues on the operation of Libby and Hungry Horse dams.

4. Compensation issues are matters appropriately addressed through established Columbia River Treaty processes. Please refer to Response to Comment 3.

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**From:** Kluckner,Paul [PYR]  
**Sent:** Friday, December 23, 2005 11:51 AM  
**To:** Upper Columbia EIS  
**Cc:** Millar,Daniel [PYR]  
**Subject:** Upper Columbia Alternative Flood Control

Mr. Evan Lewis  
US Army Corps of Engineers  
Seattle District  
PO Box 3755  
Seattle, WA 98124-3755  
USA

Dear Mr. Lewis:

RE: Upper Columbia Alternative Flood Control

I am writing in response to your letter of December 12, 2005, inviting comments on your draft Environmental Impact Statement (DEIS) for the Upper Columbia Alternative Flood Control and Fish Operations. Thank you for this opportunity.

I am pleased that your DEIS has addressed most of the comments I sent three years ago for your environmental assessment. However, there are several aspects of your preferred alternative that remain disconcerting for Canadians. While we acknowledge that VarQ (LV1) plus fish flows appears to be the optimum of alternatives considered, there are aspects of it that may jeopardize Canada's interests. Specifically, these are increased flood risk downstream, mitigation costs (especially to address groundwater seepage), pollution (in the form of total dissolved gas), economic losses to Canadian hydroelectric producers, and risk to non-target species. I believe each of these issues warrant your continuing and accommodating dialogue with Canadian resource managers.

The DEIS descriptions stating that all alternatives are "not considered to increase the risk or severity of flooding" are counterintuitive. A reservoir that is kept higher prior to spring runoff is inherently at greater risk of flooding than a pool well drawn down. Even though forecasts are improving and there are adaptive management options, unexpected events such as warm rain on snow do happen, and may happen more frequently with climate change. The Libby spill test a couple of years ago that turned into a forced spill is a good example of an unexpected event. It is important to both our countries that the Corps does not simply dismiss this increased risk, but rather always manage the Project with this risk in mind.

There are at least two instances in the DEIS where downstream impacts may require mitigation: removing additional seepage water from agricultural areas in the Creston Valley, and maintaining appropriate water levels in Duck Lake and the Creston Valley Wildlife Management Area. In both cases, the VarQ with fish flows alternative will potentially lead to higher pumping costs due to increased seepage resulting from generally higher river levels. It is confusing why the DEIS suggests these additional costs for mitigation should be borne by local authorities. The International Joint Commission's 1938 Order for Kootenay Lake set a precedent for a dam operator in BC to subsidize higher pumping costs in Idaho due to artificially-increased water levels. Perhaps that precedent applies in this case? At a minimum, when such incidental costs

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- 3 associated with the selected alternative arise, we request that the Corps keep an open dialogue with affected parties.
- 4 Incidentally, the DEIS does not mention the economic impact on downstream Canadian hydroelectric producers. Presumably the Corps will deal with this issue with the Canadian Entity under the Columbia River Treaty provisions?
- 5 The VarQ with fish flows alternative presents a confusing tradeoff between fish flows and production of total dissolved gas. As the draft statement notes, augmented flows for fish will increase the likelihood of TDG production at the several projects in the lower Kootenay. While we agree that the Brilliant expansion may reduce gas production at that facility, the older upstream projects facing increased potential of spill events will produce more gas. This is counterproductive to our countries' cooperative effort to reduce gas in the transboundary reach of the Columbia.
- 6 Finally, it is important to remember that the species targeted by the proposed alternatives are not the only species dependent on the rivers and lakes in the upper Columbia. The Creston Valley Wildlife Management Area, supporting over 250 species of birds as well as several species listed under Canada's and British Columbia's species-at-risk programs, is designated under the Ramsar Convention. It is of paramount importance to both our countries that river flow modification be conducted with due care for all these species.
- 7 We recognize that the preferred alternative will most likely be approved by Corps officials. In carrying out the management modifications, however, we encourage you to remain aware of the actual and potential negative impacts in Canada. We also urge you to maintain an open and accommodating dialogue with Canadian agencies to ensure that VarQ achieves its intended results without undue impact and cost downstream.
- Sincerely,  
Paul Kluckner  
Pacific & Yukon Director  
Canadian Wildlife Service  
Environment Canada

**COMMENTER**

**RESPONSES**

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**KLUCKNER, PAUL**

Environment  
Canada

1. Comment noted. See responses to specific comments below.
2. Comment noted. We agree that it is important to manage the dams in a manner that is consistent with our flood control responsibilities and believe that flood protection levels are maintained under VARQ FC. Adjustments in real time, as part of our water management strategy, provide flexibility to make modifications to accommodate changing conditions.
3. The Corps will continue to operate Libby Dam in a manner consistent with its obligations under the Columbia River Treaty (Treaty), the Libby Coordination Agreement, and the 1938 Order on Kootenay Lake operation from the International Joint Commission (IJC). We will continue to engage with Canadian interests regarding issues concerning VARQ FC operations.
4. We have added language on Canadian power impacts into Sec. 5.3.13 based on input we have received from BC Hydro following release of the draft EIS. The Corps will continue to meet its responsibilities pursuant to Columbia River Treaty.
5. We understand and appreciate the commenter's concerns about the increased risk of involuntary spill and resultant TDG at Canadian dams, and we have documented the likelihood of such events with available information in the EIS. The preferred alternative identified in the Final EIS, LVB, allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for the attributes. While release of up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future. This would reduce the future TDG effects at Canadian projects.
6. We are very aware of the importance of the CVWMA and the presence of species at risk. Our analysis addresses the impacts of additional flows based on the information available to us. As noted above, our desired approach to attain the attributes necessary for successful sturgeon spawning and recruitment through habitat improvements should reduce the reliance on peak flows.
7. Thank you. We will continue to work with the Canadian agencies on implementation of VARQ and related operations.

MR. MAROTZ: I'm Brian Marotz, fisheries conservation manager for Fish, Wildlife and Parks. We're going to be providing written comments, so I'm just going to touch on a few things. I'll start out by saying I congratulate the Corps and the Bureau on a very detailed analysis of a very complex situation. There are -- the preferred alternatives are very consistent with what we are looking for. There are a few quirky things that I'd like to address or at least mention.

On the -- there was one table that provided the minimum flow -- sliding scale minimum flow for bull trout on the Flathead River that went as far down as 3 kcfs. And I suspect that that was included by the Fish and Wildlife Service. However, the established minimum flow in the Flathead River at Columbia Falls is 3,500 cfs. And although we've accommodated lower flows, we've allowed lower flows down to 3.2 kcfs on at least one occasion, it was not intended to be implemented as an ongoing new minimum flow.

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We are going to recommend that the flow not be any lower than 3.2 kcfs and only with the concurrence of Montana. Otherwise, the minimum flow is 3.5 kcfs. And I was actually a little disappointed that that sliding scale was put in for bull trout, because if you look at the wetted perimeter discharge relationship for the Flathead River at Columbia Falls, 3.5 kcfs is quite a bit below what's optimal. And for bull trout in higher-than-average water years, the actual minimum flow for bull trout during the time the flows are crucial for that species should be around 4.5 to 5 kcfs. And so we'll follow up in writing. And if you want more evidence for that, I can supply that as well.

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The plots of discharge that represent the alternatives, I know for a fact that some of what we're seeing there that indicates that there's a spring fresh followed by a trough followed by another pulse of water for salmon, we know that as the double peak. I know that that's a modeling artifact and that the volumes are accurate. But those volumes can then, in real time, be shaped so that there's a gradual descending limb for after the spring fresh hits down to a stable or gradually declining discharge through the summer. And as would be called for by the mainstem amendments, the Council's mainstem amendments, we would like to see that flat part of the hydrograph after the spring fresh at the summer period extend through the end of September. The reason for that is we have a short growing season in Montana. And when all of the water is released by the end of August for anadromous fish and then the flows suddenly decline in September, we lose a lot of production river productivity that would -- could go through the end of our growing season which is the end of September. So we will provide information on the best way to shape that discharge using the volumes that were analyzed in the alternatives.

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At Libby, with the six alternatives, and Hungry Horse as well, at the time that these alternatives were established, and even to this day, the NOAA fisheries biological opinion is calling for a 20-foot drawdown and so, therefore, that's what the Corps and the Bureau analyzed. And I can understand that. But that 20-foot drawdown in the summer at these projects has never been established based on rigorous science. And that's why in the northwest part and Conservation

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Council's mainstem amendments, we have been trying to amend that so that the drawdown is ten feet in all years except the lowest 20th percentile. And, in fact, more recently -- and there is a paragraph in the EIS that says these deliberations are ongoing and are beyond the scope of this EIS. And I know you have to draw the line somewhere. But during the ongoing litigation that's occurring, and deliberations since the mainstem amendments were released, there's been other ideas mentioned that would be a solution for this where we 15 would have sliding scale with less summer drawdown when there's ample water availability, and go to the NOAA fisheries 20-foot drawdown in the driest 20 percent of water years. And that's ongoing. That research is ongoing. In fact, I know for a fact that the Corps is looking at translating those elevational targets into volumes for release from Libby. I think that idea has merit, and we've begun to look at that. And we would like to present that later, not as part of the -- I mean, we'll talk about it in text in the comments, but the actual number crunching will probably be later. That's a good idea for a solution.

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The analysis showed a slight increase in 1, uncontrolled spill under VARQ and 2, a slight percentage increase in overflow of Flathead Lake as a result of VARQ. And I think that is also modeling artifact. In fact, our analyses show that if we have a sliding refill date such that the reservoirs fill later in high-water years and earlier in low-water years, I know that the DA EIS was designed to be consistent with the June 30 refill target in the NOAA fisheries buyout. However, that cannot work in these -- and especially at Libby reservoir because oftentimes on June 30th the inflows to the project exceed turbine capacity. If the reservoir fills on June 30th and there's no room to store additional water and the inflows exceed turbine capacity, the only alternative is spill. And we're trying to avoid that. So with a sliding refill date that wasn't modeled exactly like that in the DEIS, you could have a little bit -- you would take a little bit of risk of filling the last few feet but accommodate this unforeseen or unforecasted inflows where you can take that percentage, the increased percentage of years where spill occurs, and reduce it back to what would occur under the standard flood control -- or standard operations. And that can be achieved, and we should be pursuing that.

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The most concerning thing, and that's why I was a little bit concerned about the -- the Western News. I was not surprised, in any way, that there was an alternative for turbine capacity plus 10. I was well aware of that. What I was -- and I was gratified that the preferred alternative was VARQ 1 that doesn't go beyond turbine capacity. But I was -- I'm concerned, though, that with the pressures that are coming to the operating agencies to increase the discharge from Libby Dam beyond turbine capacity, we know that we'll exceed the state water quality standards for gas supersaturation of 110 percent, somewhere between a spill of 1,000 and 2,000. And it is addressed in the EIS that it was known that this would exceed the state water quality standards, and there's no known way of avoiding the -- exceeding the gas standards. Nonetheless, hydraulically, it was modeled with turbine capacity plus 10. That is a very large concern to Montana, because we want to avoid spill and we want to avoid exceeding the state water quality standards. And we hope that when the final EIS comes out that there will be -- basically VARQ 2 will not be a viable option and that you stick with the preferred alternative of VARQ 1.

So other than that, I'm going to leave the rest for the written comments that we'll submit. And thank you very much for having this meeting tonight.

**COMMENTER**

**RESPONSES**

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**MAROTZ, BRIAN**

Montana Fish,  
Wildlife and Parks

Draft EIS Public  
Meeting, Nov 30,  
2005, Eureka, MT  
(transcript)

1. The modeling accounted for the correct minimum flows for the Flathead. The table in the Draft EIS was erroneous and has been corrected in the Final EIS.
  2. The “double peak” is indeed a product of the modeling, and an objective of real time management is to shape flows to eliminate or minimize this effect. This is reflected in the EIS.
  3. Thank you. The Mainstem Amendment recommendations for summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows that extend into September with a 10 foot draft limit in most years, differ from the operations analyzed the 2004 NOAA Fisheries’ Biological Opinion. However, the operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. The summer operations recommended in the Mainstem Amendments for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents; therefore, no further NEPA analysis would be needed if these recommendations are adopted at a later date
  4. Modeling rules were consistently applied to all the alternatives. During refill, the objective was to reach full pool at Libby as soon as possible without spilling, rather than simply trying to be full by June 30<sup>th</sup>. The refill rate was controlled by keeping track of the residual inflow forecast and comparing this with available reservoir space. If the reservoir was filling too fast, outflow from Libby would be increased to preserve some flood control space. Conceptually, this refill control is similar to using a sliding refill date. However, in the modeling there was no rule to accept a higher risk of not filling the last few feet. Had it been conducted this way, the commenter is correct in saying involuntary spill would likely decrease. (This could be true for all alternatives, not just VARQ.) In real time, reservoir regulators have better information for managing the final filling of a project than can be simulated with a model.
  5. We recognize Montana’s concern with the effects of total dissolved gas (TDG) associated with spill. The preferred alternative for Libby Dam identified in the Final EIS, LVB, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 10 kcfs above the powerhouse capacity (approximately 25 kcfs) to achieve a total release of 35 kcfs from Libby Dam is by spill. Spill of up to 10 kcfs will increase TDG concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling up to 10 kcfs for up to 14 days in late May/early June.
- Also, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon’s biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. The 2006 Biological Opinion RPA recognizes that there are several ways to achieve the desired attributes and provides the Corps and BPA with options to provide for these attributes. In the near-term, providing flow releases up to 35 kcfs out of Libby is the means available to achieve the desired attributes; however, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

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MR. MARX: I really don't have a lot of things. I've got a number of things that -- that over the years through here on the end of it that's affected what happened to us is the level of Kootenay Lake up there. And in the years before Libby was there, you could look at the river out here and it's just kind of setting, when Libby -- when the lake was full. You didn't get rid of water very fast. And so I'm assuming that that's calculated into your -- into how you get rid of all this water, if you can't run it into a low spot someplace.

And I don't know whether they've increased the capacity of being able to get water out of that lake when we start the flow or not. Which would be -- you know, all that affects how it backs up when you're sitting on the end of it.

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And another one -- a concern I'd have would be the seepage level that we would have to the particular ground that I have that's raising crop on the end of it. And how it -- whether it's going to be more or what it is and -- and maybe the reliability of you're going to take water. I'm assuming that we'll take water periodically on some level. Just how much? It makes a difference on what you're doing. And it's not great running ground down there, crops.

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And another thing that you've touched on, I think on the end of it, was basically the dam level. If you end up with -- like we have in the past on the end of it, you get a -- the ground freezes before the snow cover hits it on most of the lower areas. And when you get to where that starts to melt and you have a fair amount of snow and you start getting warm rain on the end of it, it's not going in the ground. You know. It's going to the river. And if you have the river up, you're going to have a lot of ground water and seepage and whatever else you got on the end of it, plus it will add to it.

So by the height to keep the dam, if you have no choice, you've got to let it go because it's filling. You got more water coming in than you can handle, you're going to have double. And so no matter what you want to do, it's coming down the river. And so the more space you got, the better chance you have of getting control.

And I would assume that they would look down the river at particularly the Moyie and some of the places as to what the potential of a fast runoff if the ground is frozen when it gets in the water. You know. That would -- you have to look what's above you and what's below you and all the way down the line. And that would have to be considered or -- or you can get a big surprise sometimes on the end of it.

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And then you'd end up with -- with the dikes on the end of it. Now, the dike on the north side, as far as I can tell, is -- has been in kind of a no man's land. It's not part of the diking district. And so that leaves -- that leaves everybody on the north side that has -- that has in there the houses and church and stuff and -- are susceptible to what the dike does and how high you raise the river

on the end of it. I think seepage you can probably handle somewhat on the end of it. But not unless you get too terribly high on the end of it.

4 So it would be interesting to know -- and I understand there has been a study done on those dikes on that -- probably, hopefully, on that one. And it would be nice to know what that is on the end of it. And -- because I don't get the feeling that you basically are diving off the deep end on most of these things. That you've looked at a whole lot of stuff that -- that would all interact. It's just that you don't want something to fall through the hole down at the end of it.

And the rest of them I think are pretty much district dikes. And so they have a district control thing. And just basically it's now in the city. It used to be in the county, and it was annexed to the city so now it's in the city, that dike.

I'm assuming it should have the same -- same status basically as the dikes on this side of town over here on the end of it, which are all in the city. But I don't know at the end of it.

5 I'm not sure what they're going to do -- how they plan on handling the loss of cropping and the value on land when it's -- when it's flooded from seepage on the end of it. Whether the landowner just eats that or whether there's some kind of a plan somewhere for the people that take high water and if it affects their operation and what they're trying to do. You know. I haven't seen much, but probably I'm sure they've got -- they've thought about it. But it's something that, you know, you need to know about.

And I think probably one of the things that could affect most of the people that are in a position to take seepage where they normally haven't taken seepage. When the Libby Dam went in, before that you had -- you had a lot of seepage in the valley, as far as I'm concerned. And when they put Libby in, it really straightened it out on a lot of it. And we're getting back -- whether we bring it up, now we're getting back to more seepage in the ground.

So I wonder how you handle the loss of value on land that's -- that you actually can do something with when it's sitting there growing mosquitoes.

So I think this -- it looks like, you know, they -- they've given a lot of thought to this, so I'd expect, you know, that they've got a lot of things. It just would be nice to know what they are.

**COMMENTER**

**RESPONSES**

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**MARX, JIM**

Draft EIS Public Meeting, Dec. 1, 2005, Bonners Ferry, ID (transcript)

1. The VARQ FC EIS modeling includes Kootenay Lake operations. The simulation modeling was performed for the whole Kootenai basin, not just Libby Dam, so that Kootenay Lake levels and Corra Linn Dam operations are reflected in the modeling results. The outflow capacity of Kootenay Lake has not been changed because of the flow augmentation from Libby Dam.
2. Comment noted. Section 3.3.12 of the EIS provides an evaluation of impacts of high groundwater on agriculture in the Kootenai valley.
3. Comment noted. We agree that rainfall over frozen ground causes a sharper increase in water level than occurs when ground is not frozen. Libby Dam is managed in real-time using river forecasts that incorporate basin conditions. Flood potential and available reservoir space are considered when making reservoir release decisions, regardless of the flood control procedure being used.
4. Our flood control analysis in the EIS is based on the established flood level of 1764-feet at Bonners Ferry. An evaluation of the condition of the levees was not conducted as part of this EIS but we recognize that many are not in good repair. Maintenance of the levees is a responsibility of local interests.
5. In the EIS, we have identified potential mitigation measures for future consideration.

Bruce Measure, Northwest Power and Conservation Council Member  
Draft EIS Public Meeting, Nov 30, 2005, Eureka MT  
(transcript)

MR. MEASURE: I'm Bruce Measure, 1301 Lockey Avenue, Helena, Montana, 59601, as a member of the Northwest Power and Conservation Council and on behalf of Governor Schweitzer's administration.

We've reviewed the DEIS and feel that it's a high quality analysis of the possible impacts of permanently implementing VARQ. We recognize that it's been implemented since 2002 at Hungry Horse and since 2003 at Libby and believe it's time to move forward with VARQ as the normal operating procedure.

Finally, VARQ is a finely tailored strategy for managing both the system and local flood control requirements at both Libby and Hungry Horse. In those water years, between about 80 and 120 percent of average at Libby Dam and between 80 and 130 percent average at Hungry Horse Dam, the VARQ FC reservoir elevation typically would be higher than Standard FC during the January through April draw-down period.

In this way, VARQ provides additional water in the spring and to help assure refill of Libby and Horse for the summer operations for both resident and anadromous fish.

Although the DEIS does a reasonably thorough job of evaluating possible impacts of VARQ operation, not just in the vicinity of Libby and Hungry Horse Dams, but also as far downstream as the Columbia River estuary, Montana feels that the benefits are readily discernable but do have some concerns regarding operations.

1 { The first is that the -- the stated beneficial impact of implementation of VARQ for flood control beyond its flood control goals is flow augmentation for purposes of anadromous fish downstream. And it's our concern that the agencies have failed to examine the continuing effects of flow augmentation on resident fish in the upper part of Columbia Basin and that those impacts upon resident fish need to be evaluated as well in order to fulfill the agencies' obligations. In other words, if the expected benefit of VARQ during the flow period is -- comes from flow augmentation, I think it's only fair that for resident fish purposes, you need to extend the continuing impact of that flow augmentation through the rest of the year for the resident fish. We'd like you to further examine that.

2 { We're also concerned that some of the proposed flows would certainly violate Montana's total dissolved gas caps by increasing the amount of flow downstream from the turbines beyond that that's allowed by Montana law. And we can't support those actions.

3 { The third area of concern, both the Corps and Bureau are aware of Montana's interest in modifying summer operations to provide greater benefits for resident fish in the rivers and reservoirs of Montana and should be fully aware of the Northwest Power and Conservation Council's mainstem amendments that have been -- that we've asked the -- both the Corps and the Bureau to implement for a number of years now ever since they were passed by the Council. And the Power Act -- the Federal Power Act and the Northwest Power Act require the agencies

3 { to give consideration to the findings and programs that the Council promotes. And we feel that the agencies have failed to give adequate consideration to the program found in the Council's Fifth Power Plan. And we'd ask that you review that and implement the mainstem amendments as proposed by that Plan in conjunction with this, recognizing, of course, that those end-of-summer operations are beyond the scope of this DEIS. But, again, as you're using the flow augmentation as your benefit to anadromous fish downstream, we feel that you should at least consider the continuing impacts of flow augmentation on the resident fish beyond the VARQ period.

4 { We'd also ask you to consider the Independent Science Advisory Board to the Northwest Power Conservation Council's report on flow augmentation. And that can be found on our website at [www.nwcouncil.org](http://www.nwcouncil.org). And the report basically said that the effects of flow augmentation is immeasurable and have no measurable benefits for anadromous fish downstream. And we'd ask that you consider the lack of benefit to those fish based on the ISEB report in advancing the flow augmentation arguments on behalf of anadromous fish.

5 { And finally, we -- the State of Montana would ask that the agencies consider the economic impacts on our residents of any VARQ actions that might cause an increase in power rates in the Pacific northwest. And we'll submit additional materials before January 31st.

**COMMENTER**

**RESPONSES**

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**MEASURE, BRUCE**

Northwest Power and Conservation Council Member

Draft EIS Public Meeting, Nov 30, 2005, Eureka MT (transcript)

1. For Hungry Horse Dam, the effects of flow augmentation, including effects on resident fish, were addressed pursuant to NEPA in the 1995 System Operations Review (SOR) EIS (BPA et al 1995) and this evaluation, therefore, is not repeated here. The SOR EIS also evaluated the effects of Libby Dam fish flows, but new information became available after publication of the SOR EIS which included modification of the fish flow, and, therefore prompted further evaluation in this EIS. Thus, for Libby Dam, the EIS evaluates the incremental effect of all fish flows, which includes flow augmentation for sturgeon, bull trout, and anadromous fish, on resident fish and other resources. Specifically, in the Aquatic Life section for the Kootenai River (Section 3.3.3), the EIS provides an evaluation of how fish flows affect both Lake Kootenai and Kootenai River productivity, including resident fish, in the manner recommended.

2. We recognize Montana's concerns with the effects of total dissolved gas (TDG) associated with spill. Though VARQ FC increases the risk of incidents and duration of involuntary spill across the modeled period of record compared to Standard FC, these results are not predictions of actual occurrences. Please note that there is also a risk associated with Standard FC for involuntary spill and TDG exceedance.

The preferred alternative for Libby Dam identified in the Final EIS, LVB, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 10 kcfs above the powerhouse capacity to achieve a total release of 35 kcfs from Libby Dam is by spill. Spill of up to 10 kcfs will increase TDG concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling up to 10 kcfs for up to 14 days in late May/early June.

Also, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and provides the Corps and BPA with options to provide for these attributes. In the near-term, release of flows up to 35 kcfs out of Libby is the means available to achieve the desired attributes; however, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

3. As Federal agencies responsible for managing and operating Federal hydroelectric facilities, the Corps and Reclamation must take into account the Northwest Power and Conservation Council's Fish and Wildlife Program and Mainstem Amendments in the decision-making process. The Mainstem Amendment recommendations for summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows that extend into September with a 10 foot draft limit in most years, differ from the operations analyzed in the 2004 NOAA Fisheries' Biological Opinion (2004 BiOp). However, the operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. The summer operations recommended in the Mainstem Amendments for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents; therefore, no further NEPA analysis would be needed if these recommendations are adopted at a later date.

4. We recognize there is scientific debate concerning the biological benefit of flow augmentation. Our analysis of flow augmentation for anadromous fish in the EIS was based on

**COMMENTER**

**RESPONSES**

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**MEASURE, BRUCE**

[CONT'D]

the ability to meet flow objectives at Priest Rapids and McNary dams for smolt outmigration as defined in the Action Agencies' 2004 Updated Proposed Action and considered in the 2004 NOAA Fisheries Biological Opinion. The Independent Scientific Advisory Board for the Northwest Power and Conservation Council indicated in 2004 that there is no clear relationship between increasing summer flow and improving salmonid survival. The issue of flow augmentation and supporting science is being discussed in the collaborative remand process ordered by Judge Redden in the U.S. District Court of Oregon.

5. We acknowledge the potential for changes in power rates with changes in energy availability. Although we cannot quantify impacts, we are adding an explanatory paragraph to the EIS discussion on power benefits. As for overall power rate differences from the alternative operations, we do not believe effects of the alternatives are discernible among the suite of factors that govern power rates. The EIS includes a statement concerning potential changes in rates in Sec. 5.3.13: "The overall change in generation varies depending on alternative combinations from a slight decrease to slight increase. These changes are very small relative to the entire system generation and will likely have no discernible impact on power rates."

Kalispell Public Meeting, November 29, 2005

1 MR. LECHEFSKY: First speaker is Bruce  
2 Measure.

3 MR. MEASURE: Thank you very much, Dan.

4 My name is Bruce Measure. I'm here tonight  
5 on behalf of the Montana office of the Northwest Power  
6 and Conservation Council, of which I'm a member, and on  
7 behalf of Governor Brian Schweitzer and his  
8 administration.

9 And essentially the draft environmental  
10 impact statement is a high-quality analysis of the  
11 possible impacts of permanently implementing VARQ. As  
12 you know, VARQ has been implemented on an interim basis  
13 since 2002 in Hungry Horse and since 2003 at Libby.  
14 It's now to time move forward with VARQ as the normal  
15 operating procedure for flood control, in the opinion  
16 of the individuals and agencies that I represent.

17 Implementation of VARQ is a more finely  
18 tailored strategy for managing both the system and  
19 local flood-control requirements at Libby and Hungry  
20 Horse. In those water years, between about 80 and 120  
21 percent of average at Libby and between 80 and 130  
22 percent at Hungry Horse, the VARQ FC reservoir  
23 elevation typically would be higher than standard FC  
24 during the January through April drawdown period.

25 In this way, VARQ provides additional water

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1 in the spring to help assure refill of Libby and Horse  
2 for the summer operation of both resident and  
3 anadromous fish.

4 We feel that the DEIS does a reasonably  
5 thorough job of evaluating all possible impacts of VARQ  
6 operations, not just in Libby, in Hungry Horse, but  
7 also as far downstream as the Columbia River estuary.  
8 But the effects and the proposed benefits haven't been  
9 adequately addressed.

2

10 The DEIS relies heavily on flow augmentation  
11 as a benefit to anadromous fish downstream. And flow  
12 augmentation is a questionable -- has questionable  
13 benefit to anadromous first downstream, while the  
14 operations that are resultant of flow extending beyond  
15 the VARQ period and the flood control period are not --  
16 are detrimental to Montana's resident fish and to  
17 operations, and potentially detrimental for flood  
18 control.

19 We'd ask that, if you use the benefit of flow  
20 augmentation as the basis for this operation, that you  
21 also extend that analysis of flow augmentation to the  
22 impacts on resident fish following the VARQ period,  
23 which ends essentially in July.

24 We'd also ask that the federal agencies that  
25 seem to consider flow augmentation a given investigate

1 the ISAB report -- the Independent Science Advisory  
2 Board's report -- to the Council -- and I have a site  
3 actually for the report. That's on the Web at  
4 www.nwcouncil.org -- and ask for the ISAB report on  
5 flow analysis.

6           There was a presentation given recently  
7 jointly by the agencies, both the Bureau of Reclamation  
8 and the Corps of Engineers, where flow augmentation was  
9 also disputed, and no evidence was offered that it had  
10 any beneficial value to anadromous fish in the basin.  
11 Whereas there was substantial evidence provided that  
12 flow augmentation, as it extended past the VARQ period,  
13 had significant detrimental value to resident fish in  
14 Montana.

15           And that was presented by Jim Lichfield  
16 (phonetic) at your own flow-augmentation meeting. And  
17 I'd ask that you refer to that. I don't believe I need  
18 a further site for that.

19           Montana supports the permanent implementation  
20 of VARQ as a flood-control measure, understands that  
21 there may be possible negative impacts on rivers in  
22 Montana, under certain conditions where inadvertent  
23 spills may be increased, and therefore exceed the total  
24 dissolved-gas limits in Montana's water.

25           We'd ask that you take care and consider

1 doing away with those operations that would allow for  
2 flows over turbine capacity, because the total  
3 dissolved gasses would exceed both the State's capacity  
4 that they allow for resident fish to endure.

5           And we know that there's plenty of scientific  
6 findings, including Brian Marotz's studies on the  
7 integrated rule curves that indicate that total  
8 dissolved gasses are detrimental to resident fish. And  
9 intentionally exceeding turbine capacity will quickly  
10 exceed Montana's water quality standards for total  
11 dissolved gas.

12           Both the Corps and Bureau are aware of  
13 Montana's interest in modifying summer operations. And  
14 we'd ask that you continue to review that and review  
15 the Council's main-stem amendments. We feel that the  
16 main-stem amendments have been available to both the  
17 Bureau and the Corps and that failing to include a  
18 reference to them in the DEIS is fatal, and you need to  
19 review that and make that a consideration as an option.

20           It's not necessarily precluded by Judge  
21 Redden's decisions in the NWF v. NOAA lawsuit, as he's  
22 not made a decision on that one way or another yet. So  
23 we'd ask that you include that as an alternative,  
24 Montana's operations under the main-stem amendments to  
25 the Northwest Power Council's Fifth Power Plan.

1           We're frustrated that the current litigation  
2 prevents federal agencies from reviewing and making the  
3 necessary modification proposed by the Council, and,  
4 even though those recommendations have been  
5 significantly reviewed and endorsed by the Independent  
6 Science Advisory Board, we recognize that summer  
7 operations beyond the scope of the DEIS are beyond the  
8 scope of the DEIS, but we wanted to thank you for your  
9 help thus far and let you know we are going to continue  
10 to advocate for the protection of Montana's fish and  
11 wildlife resources, and we do feel that, if you're  
12 going to use the standard-of-flow augmentation as a  
13 benefit for the anadromous fish during the VARQ period,  
14 that you have to, in fairness, extend that same  
15 detriment-of-flow augmentation subsequently, and you  
16 have to consider that in the DEIS.

17           The main-stem amendments that I've mentioned  
18 on a number of occasions are required by law, and the  
19 agencies are -- not the main-stem amendments, but that  
20 it's required by law that the agencies operating the  
21 Columbia River system take the Northwest Power  
22 Conservation Council's position into consideration when  
23 making decisions impacting fish and wildlife in the  
24 basin.

25           That has been significantly litigated.

4

{

1 significantly in your consideration.

2 Thank you so much.

3 MR. LECHEFSKY: Thank you, Bruce.

**COMMENTER**

**RESPONSES**

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**MEASURE, BRUCE**

Northwest Power and Conservation Council Member

Draft EIS Public Meeting, Nov 29, 2005, Kalispell MT (transcript)

1. Comment acknowledged. Thank you.
2. We recognize there is scientific debate concerning the biological benefit of the flow augmentation. Our analysis of flow augmentation for anadromous fish in the EIS was based on the ability to meet flow objectives at Priest Rapids and McNary dams for smolt outmigration as defined in the Action Agencies' 2004 Updated Proposed Action and considered in the 2004 NOAA Fisheries Biological Opinion. The Independent Scientific Advisory Board for the Northwest Power and Conservation Council indicated in 2004 that there is no clear relationship between increasing summer flow and improving salmonid survival. The issue of flow augmentation and supporting science is being discussed in the collaborative remand process ordered by Judge Redden in the U.S. District Court of Oregon.

As discussed in documents relied upon in ESA consultations, the Corps, the U.S. Fish and Wildlife Service, and NMFS, assume benefits to both salmon and sturgeon from spring flow augmentation from Libby Dam. With respect to summer flows, the EIS analyzes the effects of the salmon flows on resident fish in the Kootenai River (see Section 3.3.3.), and discloses potential impacts as required under NEPA. This EIS incorporates the SOR EIS by reference and incorporates new information concerning the effects on resident fish. We recognize the recommendations included in the NPCC Mainstem Amendments are intended to address the effects of summer flow augmentation on resident fish in the Kootenai system; however, the current summer operation is consistent with applicable biological opinions. These operations are currently being discussed in the court order remand.

3. No voluntary spill is being contemplated at Hungry Horse Dam. The preferred alternative identified in the Final EIS, LVB+HV, is responsive to the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative (RPA) on the effects of the operation of Libby Dam on listed Kootenai River white sturgeon, its designated critical habitat, and bull trout. LVB provides for a range of releases from Libby Dam up to 35 kcfs, if appropriate water conditions exist, to attain a normative hydrograph. The objective is to achieve the habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling up to 10 kcfs for up to 14 days in late May/early June.

Also, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and provides the Corps and BPA with options to provide for these attributes. In the near term, release of flows up to 35 kcfs out of Libby is the means available to achieve the desired attributes; however, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

4. As Federal agencies responsible for managing and operating Federal hydroelectric facilities, the Corps and Reclamation must take into account the Northwest Power and Conservation Council's Fish and Wildlife Program and Mainstem Amendments in the decision-making process. The Mainstem Amendment recommendations for summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows that extend into September with a 10 foot draft limit in most years, differ from the operations considered in the 2004 NOAA Fisheries Biological Opinion (2004 BiOp). However, the operation of the FCRPS, including the

**COMMENTER**

**RESPONSES**

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**MEASURE, BRUCE**

[CONT'D]

summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon.

The summer operations recommended in the Mainstem Amendments for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents; therefore, no further NEPA analysis would be needed if these recommendations are adopted at a later date.

# Montana



## Northwest Power and Conservation Council

**Bruce A. Measure**  
Council Member  
**Rhonda Whiting**  
Council Member

December 21, 2005

*Rec'd 29 Dec 2005*

Jeff Laufle   
Project Manager  
U.S. Army Corps of Engineers, Seattle District  
P.O. Box 3755  
Seattle, Washington 98124-3755

Lori Postlethwait  
Project Manager  
U.S. Bureau of Reclamation  
1150 No. Curtis, Suite 100  
Boise, Idaho 83706

Dear Mr. Laufle and Ms. Postlethwait:

We appreciate the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Upper Columbia Alternative Flood Control and Fish Operations prepared by the U.S. Army Corps of Engineers (Corps) and U.S. Bureau of Reclamation (Bureau) and released in November of this year. As members on the Northwest Power and Conservation Council (Council), we recognize the importance of dam operations for fish and wildlife, power production, flood control, and all the other important operating functions that those facilities serve. As Montana Members, we look specifically at Libby and Hungry Horse operations and their impacts on fish and wildlife in Montana.

As you are aware, the federal operating agencies must consider the Council's Fish and Wildlife Program when making operational decisions related to the federal hydrosystem. While we support the permanent implementation of VARQ at Libby and Hungry Horse, we still feel there is some room for improvement in the DEIS. The Council's Fish and Wildlife Program, through its recently enacted Mainstem Amendments, call for implementation of specific operations at Libby and Hungry Horse. While the Amendments fully support VARQ, they call for summer operations consisting of stable or "flat" flows and extending those flows out into September, as well as limiting the draft limit at Libby and Hungry Horse to 10 feet rather than 20 feet in most water years.

1

1 The DEIS addresses the Mainstem Amendments only briefly stating that the deliberations associated with the implementation of the Mainstem Amendments are beyond the scope of the proposed DEIS. Montana does not fully agree. While we acknowledge that the scope of the DEIS largely is focused on VARQ with fish flows, we note that models on discharges resulting from the alternatives seem to show a "double peak"<sup>1</sup> at Libby and Hungry Horse and you also assume 20 foot drafts at Libby and Hungry Horse. Both of these are in direct contradiction to the Mainstem Amendments that call for stable flows and a 10-foot draft limit in most water years. Generally, we continue to be troubled by the overall concept of flow augmentation from Libby and Hungry Horse for salmon in the lower Columbia. Governor Schweitzer aptly points out Montana's position on this in the comments he submitted on this matter and notes that flow augmentation seems to be a "given" even though recent science seems to indicate the benefits to salmon are either tiny or immeasurable.

2 Having voiced our concerns about summer operations and the Council's Mainstem Amendments, we do admit that the DEIS is a high quality analysis of the possible impacts of permanently implementing VARQ. VARQ has been implemented on an interim basis since 2002 at Hungry Horse and 2003 at Libby to much success and it is now time to move forward with VARQ as a standard operating procedure. We appreciate the complete analysis of both positive and negative consequences of VARQ, and know that you will do all you can to avoid the negative consequences and mitigate them if they occur.

3 We fully support the permanent implementation of VARQ but also remain highly concerned that inadvertent flows may exceed the Total Dissolved Gas (TDG) limits in Montana's water quality standards. The federal agencies should take every precaution to avoid such an occurrence. We support your preferred alternative in the DEIS that calls for implementation of VARQ without intentionally exceeding turbine capacity at Libby and Hungry Horse. This is important to Montana as well because intentionally exceeding turbine capacity (spill) will also quickly exceed Montana's water quality standards for TDG and violate the Clean Water Act. Montana would need to fully evaluate any such proposal prior to implementation because of the impacts TDG has on the aquatic environment below the dams.

4 We also ask that you incorporate by this reference the comments submitted by Montana Fish, Wildlife and Parks and other Montana State Agencies in this matter. Brian Marotz and others from MFWP have spent years studying and working on operations at Libby and Hungry Horse Dams, and were instrumental in the development of IRC's and VARQ. We continue to work with them on a regular basis and trust their expertise as they always have the fish and wildlife of Montana first and foremost on their minds.

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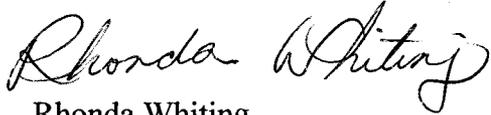
<sup>1</sup> A "double peak" by our definition is high spring flows, followed by a flow reduction, and then a sudden increase in flows for salmon in the lower Columbia. These erratic flows have been shown to be detrimental to resident fish in the rivers below and reservoirs above Libby and Hungry Horse Dams. The last couple of years the operating agencies have done a fairly good job of stabilizing flows to good reviews from fish biologists at Libby and Hungry Horse.

Thank you again for allowing us the opportunity to comment on this important matter.  
Please let us know if you have any questions related to our comments.

Sincerely,



Bruce Measure  
Montana Member  
Northwest Power and Conservation Council



Rhonda Whiting  
Montana Member  
Northwest Power and Conservation Council

**COMMENTER**

**RESPONSES**

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**MEASURE, BRUCE  
AND RHONDA  
WHITING**

Northwest Power  
and Conservation  
Council

1. Comment noted. As Federal agencies responsible for managing and operating Federal hydroelectric facilities, the Corps and Reclamation must take into account the Northwest Power and Conservation Council's Fish and Wildlife Program and Mainstem Amendments in the decision-making process. The Mainstem Amendment recommendations for summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows that extend into September with a 10 foot draft limit in most years, differ from the operations analyzed the 2004 NOAA Fisheries Biological Opinion (2004 BiOp). However, the operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. The summer operations recommended in the Mainstem Amendments for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents; therefore, no further NEPA analysis would be needed if these recommendations are adopted at a later date.

2. Comment noted. Thank you.

3. We recognize and share Montana's concerns about total dissolved gas (TDG) impacts, particularly those associated with an operation that provides flows in excess of powerhouse capacity. Involuntary spill is a risk with both VARQ FC and Standard FC, and through real-time management, the Corps and Reclamation are committed to minimizing this risk to the extent possible.

Since the issuance of the USFWS 2006 BiOp and RPA, the preferred alternative is LVB, which allows for a range of flows to be provided in concert with the water conditions available in any given year. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase TDG concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB.

The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for the attributes. While flow releases up to 35 kcfs out of Libby is one method to achieve the depth attribute in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

With respect to the TDG effects associated with spill at Hungry Horse Dam, analysis prepared by Reclamation shows that if spill as a percent of total flow remains below 20%, the resulting TDG levels below Hungry Horse Dam will remain below 110%. Reclamation will try to limit spill as a percent of total flow to 21% to keep TDG levels below the State of Montana criterion.

4. Thank you. We too appreciate the expertise of Brian Marotz and others from Montana Fish, Wildlife and Parks and continue to value their input. Please refer to Response to Comments of Brian Marotz and Chris Hunter of Montana Fish, Wildlife and Parks.

Bill Michalk  
HCR 85 Box 338  
Bonners Ferry, Id. 83805

January 16, 2006

Mr. Evan Lewis *rec'd 1/19/06*  
US Army Corps of Engineers  
Seattle District  
P.O. Box 3755  
Seattle, Wa. 98124-3755

Dear Mr. Lewis

Please find enclosed my review comments for the Upper Columbia Alternative Flood Control and Fish Operations (Libby Dam VARQ) Draft Environmental Impact Statement. The following pages contain specific comments from the EIS. General comments are given below.

1

Libby Dam Hydro-Regulation Modeling (Appendix B & I) does not include some very important considerations that will exist under actual conditions. The modeling was not performed with adverse conditions of equipment failure at Libby Dam combined with worst case inaccurate water supply forecast and the variable Dec. 31 draft elevation. The combination of these events could reveal a case where VARQ actually causes a flood, or worsens flood damages, in Bonners Ferry and the Kootenai Valley. In-addition, the modeling and its results were not submitted for independent peer review. Good engineering practice would dictate that combined worst case events that reasonably could occur in actual situations should all be included in the modeling parameters. Because of the significant potential danger to the health and welfare of the general public downstream of Libby Dam, the Hydro-Regulation Modeling should be performed using all reasonable worst case conditions. The modeling and its results should be subjected to independent peer review.

2

Section 3.3.12, page 168, states that economic losses to individual agricultural producers can be substantial. However, the Mitigation Section, page S-13, states that local drainage districts and landowners should fund and carry out mitigation measures for flood control and ground water seepage. It is impossible for the agricultural producers (the land and drainage district owners) to pay for any mitigation measures when they are burdened with the substantial economic damages caused by VARQ and fish flows (COE and FWS actions). Agricultural producers in the Kootenai Valley should not have to pay the undue cost incurred as a result of VARQ implementation for the sole benefit of FWS. Mitigation measures are not valid measures if they can not be reasonably implemented.

3

The EIS did not address flowage easements within the Kootenai Valley. After Libby Dam was constructed, flowage easements were gained by the COE for mitigation of downstream affects. The easements were the only means offered by the COE to the landowners and drainage districts for mitigation of downstream damages. They are a contract with private property owners based on the existing operation of Libby Dam (ie. existing damage levels from the river). The easements remain as a cloud on private property titles. Because VARQ significantly changes the operation of Libby Dam and it significantly increases damages within the Kootenai Valley, the flowage easements are no longer valid contracts. The EIS should address this issue and provide a means to remove the easements from private property titles.

If you have any questions concerning my comments, please feel free to contact me.

Sincerely,

  
Bill Michalk

c. Honorable Senator Larry Craig, Idaho  
Honorable Senator Mike Crappo, Idaho  
Honorable Congressman Butch Otter, Idaho  
State of Idaho, Office of Species Conservation

Comment No. 1.

Page: S-6, Last Paragraph.

LS and LV Benchmarks

4  
Action: Include a statement to clarify the 1995 SOR EIS was not submitted for public review or public comment. Under “New Information..”, include the 1997 System Flood Control Review and the 1999 Work to Date of VARQ at Libby & Hungry Horse documents. Clarify the documents were not submitted for public review or comment and the 1999 document was excluded from the public.

Basis: Previous river system documents (1995 SOR EIS, 1997 System Flood Control Review, 1999 Work to Date of VARQ at Libby & Hungry Horse) were not submitted for public review or comment; public input was not utilized in there development. In fact, the 1999 document could not be obtained from the COE when it was requested under the Freedom of Information Act, it was excluded from the public. These documents provide a basis for conclusions and assumptions in this EIS, therefore, it should be noted that public review or input was not included in the development of these documents.

Comment No. 2

Page: S-10, 2<sup>nd</sup> Paragraph.

Kootenai River Basin

5  
Action: Provide a basis for, and proof of, “synergistic” benefits to ecosystem functions.  
Provide a definition for “synergistic benefits”.

Basis: The statement “All of the alternatives would ... provide more normative river flows with resultant synergistic benefits to ecosystem functions” is a conclusion with no basis. There is no absolute proof that normative river flows will benefit the ecosystem functions in the Kootenai River, let alone provide a “synergistic” benefit.

Comment No. 3

Page: S-10, 3<sup>rd</sup> Paragraph.

Kootenai River Basin.

6  
Action: Delete 2<sup>nd</sup> sentence “Future expansion of crops that are sensitive to shallow ground water...”.

Basis: First, all of the crops currently grown in the Kootenai Valley are sensitive to shallow ground water damage. Second, all of the Kootenai Valley has been developed for agricultural production. Therefore, expansion of crops would not worsen agricultural impacts. If crops of greater economic value are grown, then future agricultural impacts would worsen.

Comment No. 4

Page: S-13, 1<sup>st</sup> Paragraph.

Mitigation

Kootenai River Basin.

Action: Delete last 2 (two) sentences concerning drainage districts and system modifications.

7

Basis: The EIS assumes the Drainage Districts do not have optimized systems. Most of the Drainage Districts have been in operation for more than 76 (seventy six) years. Over this long period of time the drainage systems have been optimized to the maximum extent. If increasing the drainage systems or pumping facilities were possible to mitigate high ground water, then those modifications would have already been made.

Comment No. 5

Page: S-13, Last Paragraph.

Mitigation.

Kootenai River Basin.

Action: Delete last paragraph "Potential mitigation...agricultural impacts..."

8

Basis: Many of the non-drained seepage areas are isolated areas that would require completely new and separate drain systems. One field in Drainage District No. 2 has 12 (twelve) separate areas (ref. Appendix G, Plate No 16). Each of these would require independent pumping systems. Installation, operation and maintenance costs would be prohibitive for this many systems. Also, see comment No. 4 above. If this was a viable means of drainage it would have been implemented long ago.

Comment No. 6

Page: S-13.

Mitigation.

Kootenai River Basin.

Action: Add a statement for mitigation of increased pumping costs for local drainage districts and for the increased crop economic losses.

9

Basis: The EIS does not address any mitigation for the increased costs incurred by the drainage districts and property owners in the Kootenai Valley. The losses incurred by private property owners are directly a result of actions by the COE.

Comment No. 7

Page: S-13.

Mitigation.

Kootenai River Basin.

Action: Add a statement for mitigation of private property damages due to increased river bank and dike erosion for the area upstream of the Kootenai River bridge at Bonners Ferry, Idaho.

10

Basis: The area upstream of the Kootenai River bridge at Bonners Ferry is highly susceptible to erosion that is caused by increased velocity from higher river flows (ie. High-energy channel, Ref: EIS Appendix C, page C-8). The EIS does not address the increased erosion and damage to property owners in this area of the river.

Comment No. 8

Page: S-13.

Mitigation.

Kootenai River Basin.

Action: Add a statement to remove the Flowage Easements from private property titles in the Kootenai Flats.

Basis: The flowage easements were originally provided by the COE for mitigation of downstream affects from Libby Dam. The easements are a contract between the COE and private property owners that result in a "cloud" on the property title and therefore diminish its value. The contracts were originally agreed to by the property owners and drainage districts with the understanding they were limited to the present COE operational guidelines of Libby Dam. Because the COE has changed these guidelines by implementation of VARQ, property damage will be greatly increased compared to that which was considered in the original contracts; therefore, the contracts have been broken by the COE. The flowage easements should be considered null and void and they should be removed from the property titles.

11

Comment No. 9

Page: S-15.

Unavoidable Adverse Effects.

Kootenai River Basin.

Action: Add a bullet point to include the increased private property damage from river bank and dike erosion upstream of the Kootenai River bridge in Bonners Ferry, Idaho.

12

Basis: See comment No. 7 above for the basis. The increased flows caused by VARQ will increase erosion upstream from Bonners Ferry.

Comment No. 10

Page: 10, Last Paragraph, Section 1.4.4.  
Standard and VARQ Flood Control.

13

Action: Add a statement that VARQ FC requires 800,000 acre feet more in the WSF, compared to Standard FC, before Libby Dam is fully drained.

Basis: The VARQ FC requires approximately 800,000 acre feet more in the WSF before Libby Dam is fully drained. This is an important point for the public to understand that in large runoff years, VARQ requires an even greater WSF before Libby Dam is fully drained.

Comment No. 11

Page: 85, 3<sup>rd</sup> Paragraph, Section 3.2.13.  
Flood Impacts.

14

Action: Revise this sentence to clarify the 1764 elevation flood stage at Bonners Ferry was established by the COE based on its survey studies. The National Weather Service did not identify the flood stage, they simply adopted the COE “zero damage limit” elevation. In-addition, reference the COE studies that established the zero damage limit and summarize their results. Include a clarification that these studies were not submitted for public review or comment. Include a statement that Boundary County & Bonners Ferry, Idaho do not agree with 1764 zero damage limit.

Basis: The 1764 zero damage limit was developed by the COE in several studies. The COE did not submit these studies for public review or comment. The public had no input into studies. Furthermore, the National Weather Service did not establish the flood stage (ie. The NWS did not survey the Kootenai River banks), they simply adopted 1764 based on the COE zero damage limit.

Comment No. 12

Page: 103, 2<sup>nd</sup> Paragraph, Last Two Sentences, Section 3.3.1.  
Bonners Ferry.

15 Action: Clarify that levee and bank integrity upstream of the Kootenai River bridge in Bonners Ferry will be impacted by the higher river flows due to the greater erosion velocity. Erosion damage will be much greater than damage caused by ramping rates.

Basis: River bank and dike erosion upstream of the Kootenai River bridge is primarily caused by river velocity. By comparison, ramping rates cause minor erosion damage.

Comment No. 13

Page: 149, 1<sup>st</sup> & 3<sup>rd</sup> Paragraph, Section 3.3.6.  
Libby Dam to Kootenay Lake near Creston, BC.

16 Action: Provide a sentence to clarify that wetland habitat establishment, conservation, and restoration in the Kootenai Valley involves mostly private property. The majority of this property is currently in agricultural production and, therefore, it will be damaged by the wetland establishment.  
Also include a statement that higher river flows will cause a greater spread of noxious weeds (seeds). At, or near flood stage, the seeds will be spread onto private property.

Basis: The ability to create or to restore wetland in the Kootenai Valley involves mostly private property. Most of this property is currently in agricultural production that will be damaged by the lack of drainage or the expansion of wetlands.

The higher river flows will cause a greater spread of noxious weeds (seeds) such as Knapweed.

Comment No. 14

Page: 167, Section 3.3.12.  
Agricultural Impacts from High Ground Water.

17 Action: Add a sentence to clarify the HDR study (Appendix G) does not identify all seepage areas in the Kootenai Valley. Actual ground water damages, and subsequent producer damages, will be greater because insufficient time was allotted for HDR and the property owners to identify all areas impacted by high ground water.

**COMMENTER**

**RESPONSES**

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**MICHALK, BILL**

1. The hydroregulation modeling for Libby and Hungry Horse dams is based on periods of record that include a variety of water years, of forecasts, runoff timing, and other factors. The periods of record include years with very high runoff such as 1948, 1954, 1996, and 1997, which test the ability of different dam operations to maintain flood protection for downstream areas under reasonably foreseeable “worst-case” scenarios. As stated in Appendix I, “[a]lthough the various hydroregulation models may differ in terms of water supply forecast inputs and periods of records, they provide a reasonable depiction of the hydrologic effects of the various alternative dam operations.” Please note that models are valuable tools for project operators; however, because they have limitations and can’t simulate every eventuality, we must also rely on our expertise and engineering judgment in making operational decisions. In the instance you suggest of an equipment failure causing a reduction in Libby’s powerhouse capacity, we are confident that there is enough outlet capacity via sluices and/or the spillway to accommodate this changed condition. The variable December 31 draft study (summarized in Appendix M) that was initiated after the VARQ hydro-regulation modeling was completed, included a requirement that flood control drafts in January, February, and March still be achieved consistent with the VARQ hydro-regulation modeling. The hydroregulation modeling was reviewed independently by the Corps’ Hydrologic Engineering Branch at the Northwestern Division office in Portland and the report underwent another independent technical review by Corps and Bonneville Power Administration prior to release of the draft EIS; a number of improvements resulted from these reviews.

2. Comment noted. As stated on page S-12 and in Sec. 3.5 and required under NEPA, the statement of potential mitigation measures lists possible avenues to achieve mitigation and does not allocate or forecast contributions by any party to provide mitigation.

3. Comment noted. Through Section 56 of Public Law 93-251, Congress appropriated \$1,500,000 to be used by the Corps of Engineers to compensate drainage districts and land owners in Kootenai Flats for modifications and damages resulting from operations at Libby Dam. In many instances land owners submitted claims and in exchange for payment granted flowage easements to the Government. These flowage easements are considered real property and give the Government the perpetual right to permanently alter, change and interfere with the water level in, under and upon the land and to saturate and percolate and to cause erosion, sloughing and slides in the land in connection with the past, present and future operation and maintenance of the Libby Dam and Lake Kootenai Project. While the preferred alternative in the Final EIS alters the operation of Libby Dam, it does so within the Government’s existing property rights acquired under these flowage easements, which continue to be valid and enforceable interests in real property.

4. The 1995 System Operation Review (SOR) EIS was the subject of extensive public review during NEPA scoping, EIS development, and EIS review. Comments received on the draft EIS were used in finalizing the SOR EIS (and are documented in Appendix T of the SOR Final EIS). The remaining reports identified by the commenter include information on analysis of flood control operations developed after the SOR EIS. The information developed for this EIS represents the latest available analyses of VARQ operations. The referenced 1999 document has been available since 2003 and is posted on-line at [www.nwd-wc.usace.army.mil/cafe/forecast/VARQ/varq.htm](http://www.nwd-wc.usace.army.mil/cafe/forecast/VARQ/varq.htm).

5. The flow measures evaluated in the EIS, along with other ecosystem and fish population recovery measures, are being undertaken based on the best available scientific information, which includes the premise that normative river flows provide biological benefits to a variety of ecosystem functions. This is a concept with substantial support from the scientific community and is based on ecological research. Additionally, LVB, the preferred alternative identified in the Final EIS, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative for Kootenai River white sturgeon. To clarify the referenced section of the EIS, the glossary in the Final EIS defines “synergy” as “addition or multiplication of effects of multiple actions taken together.”

**COMMENTER**

**RESPONSES**

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**MICHALK, BILL**

[CONT'D]

6. This sentence is intended to emphasize that certain crop types grown in the valley are relatively more sensitive to shallow groundwater than others. For example, hops appear to suffer greater yield reduction than winter wheat under the same groundwater conditions. Expansion of the proportion of the valley growing these more sensitive crops would increase agricultural impacts from seepage. The EIS Executive Summary has been revised to read: "Expansion of acreage of hops or other crops that tend to be more sensitive to shallow groundwater would further worsen agricultural impacts from groundwater seepage linked to higher river flows during the spring and summer."

7. In this EIS, actions are identified, including potential improvements to the drainage system. See the Response to Comment 8 that addresses concerns with optimization of valley drainage systems.

8. Thank you for the additional clarification of potential drainage system improvement needs. The last sentence of the last paragraph on page S-13 recognizes that "the cost-effectiveness of mitigation for agricultural seepage may be low."

9. A discussion of costs for pumping/drainage in the Kootenai Valley in Idaho has been added to Section 3.3.12 under "Agricultural Impacts from High Groundwater Levels." We have not identified reasonable measures to mitigate for these increased costs, and Section 3.6.12 has been revised to note that increased costs for pumped drainage are an unavoidable adverse impact.

10. Section 3.3.1 of the EIS has been revised to include discussion of the potential for bank erosion upstream of Bonners Ferry under each alternative.

11. Please refer to Response to Comment 3.

12. As noted in Response to Comment 10, potential bank erosion related to flows and water velocity is discussed in Section 3.3.1 of the Final EIS. Section 3.5.1 of the Final EIS also addresses potential mitigation for erosion impacts in the form of bank stabilization of vulnerable shorelines. Since mitigation of the effects is possible, bank erosion does not represent an unavoidable adverse impact in the context of NEPA.

13. The Standard FC storage reservation diagram calls for a "full drain" of the reservoir when the water supply forecast is greater than or equal to 7.5 MAF (Appendix B, Figure 2). The VARQ FC storage reservation diagram calls for a "full drain" when the water supply forecast is greater than or equal to 8.0 MAF (Appendix B, Figure 3). The difference between those water supply forecasts is 500,000 acre-feet, not 800,000 acre-feet. Furthermore, the reservoir level behind Libby Dam depends on more than just the water supply forecast. In practice, Libby typically does not achieve the draft indicated by either Standard or VARQ FC in years with water supply forecasts greater than about 7.5 MAF, since dam releases generally must be curtailed to comply with the 1938 IJC Order on Kootenay Lake. In real time operations under Standard and VARQ FC operations, we do not expect to provide any differences in flood protection for the communities downstream of Libby Dam.

14. The subject sentence has been clarified to read "The National Weather Service considers elevation 1764 feet to be the flood stage at Bonners Ferry." The Corps currently operates Libby Dam not to voluntarily exceed elevation 1764 at Bonners Ferry.

15. Please see Response to Comments 10 and 12, above.

16. We recognize the private ownership of the majority of agricultural property in the Kootenai Valley. We also recognize work by federal, state, tribal, and non-governmental organizations

**COMMENTER**

**RESPONSES**

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**MICHALK, BILL**

[CONT'D]

to restore ecosystem functions, including wetland functions, in the Kootenai Valley and, accordingly, discuss the potential benefits and impacts of the different dam operation alternatives on wetlands. This discussion would apply to both public and private properties. We do not believe that changes in river flows are a significant factor in the spread of noxious weeds and have therefore not included discussion of this topic in the final EIS.

17. Appendix G summarizes the effort to quantify potential agricultural damages from the different dam operations, which involved field identification of seepage areas by HDR, research on crop tolerance to high groundwater by Dr. Glen Murray, development of a model to simulate groundwater conditions in the entire valley, and analysis of the economic consequences of the simulated groundwater conditions. The overall seepage analysis acknowledges that mapped seepage areas from the HDR portion of the study may underestimate actual impacts. However, we feel confident that the analysis adequately reflects potential seepage impacts and allows for reasonable comparison of agricultural impacts from high groundwater levels resulting from the different dam operations.



## Confederated Tribes of the Colville Reservation

P.O. Box 150  
Nespelem, Washington 99155

January 3, 2006

Mr. Evan Lewis, PM-PL-ER  
U.S. Army Corps of Engineers  
Seattle District  
P.O. Box 3755  
Seattle, WA 98124-3755

Re: Colville Tribes' comments on VARQ Flood Control DEIS

Dear Mr. Lewis:

The Confederated Tribes of the Colville Reservation ("Colville Tribes") appreciates the opportunity to review and comment upon the Draft Environmental Impact Statement on the "Upper Columbia Alternative Flood Control and Fisheries Operations" dated November 2005 (VARQ FC).

The Colville Tribes is concerned about the general lack of quantitative analysis on *cumulative impacts* of VARQ FC at Grand Coulee and Chief Joseph Dams and in Lake Roosevelt and Lake Rufus Woods and the failure to consider cumulative impacts of all reasonably foreseeable operations alternatives for the Federal Columbia River Power System (FCRPS).

1 While the DEIS did consider cumulative impacts stemming from potential scenarios for operation of Libby Dam, Hungry Horse Dam, IJC Order of 1938, Columbia River Treaty, Grand Coulee Dam and the proposed Columbia River Initiative (CRI, which the State withdrew in early 2005), the Colville Tribes believes that further consideration needs to be given to proposals that may be forthcoming from the State of Washington during the 2006 legislative session that could modify the former CRI, and to the remand process for the FCRPS Biological Opinion that is going forward in response to orders from the federal district court in Oregon in *National Wildlife Federation et al. v. National Marine Fisheries Service et al.*, CV 01-640-RE.

2 The Colville Tribes respectfully submits that until a final Biological Opinion for the FCRPS is completed, sound impacts and cumulative impacts from operations proposed for portions of the basin are premature and lacking in critically important context. A final environmental impact statement and record of decision cannot reasonably be made with regard to the Upper Columbia VARQ FC until there is meaningful opportunity to coordinate such analysis and decision-making with a final Biological Opinion for the FCRPS.

3 The Colville Tribes is deeply concerned with respect to draw-downs in Lake Roosevelt, as any such drawdown would severely harm recreation, increase vandalism of Colville tribal cultural resources and burial sites, and destabilize the power supply system. We also have significant concern with respect to probable violations of Tribes'

3

water quality standards, exposure and mobilization of contaminated sediments in Lake Roosevelt, adverse impacts to habitats of resident and anadromous species, and decline in the value of our Grand Coulee Dam settlement with the United States, which is based on hydro-power revenue from Grand Coulee Dam.

1

The construction of Grand Coulee Dam had profound adverse impacts on the culture, resources and economy of the Colville Tribes. We have lost the historic salmon runs in the Columbia River above Grand Coulee Dam, and suffered the loss of some of our most valuable farmlands and wildlife habitat. Resident fish species in Lake Roosevelt have been developed as partial substitution for lost anadromous runs. In addition, the Tribes reached a settlement with the United States for use of tribal lands based in part on compensation from hydropower production at Grand Coulee Dam. A final Biological Opinion for the FCRPS will most likely include operational provisions for the various federal dams and reservoirs in the Columbia River Basin, including the Snake River Sub-basin. At this point those operational provisions remain uncertain, but they certainly will, together with the impacts associated with implementing any new FCRPS Biological Opinion, have cumulative impacts to the Colville Tribes' interests in Lake Roosevelt.

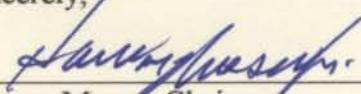
The Colville Tribes believes that the draft EIS is deficient for not having evaluated the impact and cumulative impact on the Tribes' settlement agreement and ongoing anadromous fish mitigation projects.

For a more detailed examination of our concerns respecting dissolved gases, contaminated sediments, burial sites, cultural resources, reservoir retention time in Lake Roosevelt, and impairment of our Grand Coulee Dam settlement, please find enclosed the declarations of experts for the Tribes filed with the District Court for Oregon.

2

I am hopeful that a final environmental impact statement and record of decision on the upper Columbia VARQ FC can be delayed until the final Biological Opinion for the Columbia River Basin is completed and cumulative impacts can be properly assessed.

Sincerely,

  
\_\_\_\_\_  
Harvey Moses, Chairman  
Confederated Tribes of Colville Reservation

Enclosures

cc: Dan Lechefskey, BOR  
Joe Peone, Director, Fish and Wildlife  
Gary Passmore, Director, Environmental Trust  
Camille Pleasants, Tribal Historic Preservation Officer  
Steve Suagee, Reservation Attorney

UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON

NATIONAL WILDLIFE FEDERATION, et  
al.,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES  
SERVICE, et al.,

Defendants,

Civil No. 01-0640-RE (Lead Case)  
CV 05-0023-RE  
(Consolidated Cases)

**DECLARATION OF GENE JOSEPH,  
Colville Business Council, In Support of  
Regional Coalition's Joint Response To  
Motion For Further Injunctive Relief**

---

I, the undersigned Gene Joseph, do hereby declare and state as follows:

1. I am an elected member of the Colville Business Council, the federally recognized governing body of the Confederated Tribes of the Colville Reservation (Colville Tribes). I have served on the Business Council for numerous terms, and have always had an active interest in the Colville Tribes' water resources legal and policy issues. For instance I have participated in the policy decision-making associated with the litigation that resulted in the Ninth Circuit decision in *Colville Confederated Tribes v. Walton*, 647 F.2d 42 (9<sup>th</sup> Cir. 1981), and in the Tribes' successful negotiations of a claims settlement with the United States in 1994 regarding use of the Colville Tribes' lands for Grand Coulee Dam and Lake Roosevelt, which Congress approved in Pub.L. 103-436, 108 Stat. 4577. I make this statement in my official capacity and on

the basis of many years' experience in the governmental affairs of the Colville Tribes.

2. The Colville Tribes is very concerned about the potential adverse impacts of the plaintiffs' proposal in its pending motion for changes in Lake Roosevelt operations. The culture and fishing economy of Colville Tribes was devastated by the construction of Grand Coulee Dam, but we have learned to adapt to the new resource opportunities that it has presented. I am providing this statement to focus on two items – the Tribes' 1994 Grand Coulee Dam claims settlement with the United States and its 2005 Agreement In Principle with the State of Washington – that are relevant to this Court's consideration of plaintiffs' motion and to further proceedings in this litigation.

#### **Grand Coulee Dam Claims Settlement**

3. Prior to Grand Coulee Dam the Colville Tribes fishing rights within its Reservation and the former North Half thereof provided access to 150 miles of the anadromous fisheries of the upper Columbia River, from the Okanogan River confluence to the Canadian border. These fisheries included the great inter-tribal fishery at Kettle Falls. Over the pleas of the Colville Tribes, the United States constructed Grand Coulee Dam without fish ladders, thereby eliminating anadromous fish from most of the Colville Tribes reserved fishing areas. The United States paid the Colville Tribes' \$63,000.00 for the use of Colville Reservation lands on which Grand Coulee Dam and Lake Roosevelt are situated.

4. The Tribes initiated a claim in 1946 with the Indian Claims Commission, seeking compensation for the value of its lands for hydro-power production. Eventually the claim was transferred to the Court of Federal Claims, and in 1992 the Tribes gained a decision from the Federal Circuit reversing the trial court's dismissal of the claim. After that the Tribes and the United States settled in 1994.
5. Under the settlement, the Tribes receives annual payments from the Bonneville Power Administration (BPA) based on the power revenue from Grand Coulee Dam. These annual payments have averaged at least \$15 million. Although no amount of money can make up for the damage to our culture and way of life caused by Grand Coulee Dam, these payments are nevertheless a meaningful symbol of 50 years of our perseverance in righting one of the great injustices ever to befall the Colville Tribes. In addition, these payments are also an important part of the funding base on which the Colville Tribes operates its government and provides for the needs of its members.
6. The Declaration of Whitfield Russell explains the formula used to calculate the Colville Tribes' share of Grand Coulee power revenues under our 1994 settlement, and demonstrates that the Colville Tribes' share will be significantly reduced by changes advocated by plaintiffs for 2006 operations of Lake Roosevelt and the overall Federal Columbia River Power System (FCRPS). Thus these changes in operations would in effect reinstate some of the harm done to the Colville Tribes by the original construction of Grand Coulee Dam.

## **Colville-State Agreement In Principle**

7. In January, 2005, the Colville Tribes executed an Agreement In Principle (AIP) with then-Governor Locke of the State of Washington. On November 9, 2005, this AIP was amended and extended by an Addendum signed by current Governor Gregoire. Copies of the AIP and Addendum are attached hereto. In the AIP and Addendum, the State of Washington recognizes the significant interests of the Colville Tribes in Lake Roosevelt and the Upper Columbia River, and in particular acknowledges the many significant impacts that would occur to the Colville Tribes' interests from any additional drawdowns of Lake Roosevelt.
8. The State sought the AIP with the Tribes because it was considering how to develop a new mainstem Columbia River water resources program that would provide new water supplies for fish flows and for out-of-stream uses. One source of new supply could be Lake Roosevelt. But the State wanted to ensure that all potential impacts of any new drawdowns would be studied and mitigated *before* implementation. The State and Colville Tribes' AIP sets forth a method for studying the impacts of a new annual drawdown of 82,500 acre feet (AF), roughly one-sixth the volume sought in plaintiffs' present motion for a summer 2006 drawdown.
9. The Colville Tribes and State of Washington have made significant progress in a constructive government-to-government relationship relating to some of the most difficult water resources issues in the Upper Columbia Basin. The plaintiffs' proposed new drawdown would disrupt and pre-empt that progress

and impose harm on the Tribes' interests in Lake Roosevelt without any provision for evaluation in advance or for any mitigation.

10. 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, experience and judgment.

EXECUTED November 22, 2005, at Nespelem, WA.

\_\_\_\_\_/s/Gene Joseph  
Gene Joseph, Colville Business Council  
Confederated Tribes of the Colville Reservation

UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON

NATIONAL WILDLIFE FEDERATION, et  
al.,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES  
SERVICE, et al.,

Defendants,

Civil No. 01-0640-RE (Lead Case)  
CV 05-0023-RE  
(Consolidated Cases)

**DECLARATION OF THOMAS M.  
WATSON In Support of Regional  
Coalition's Joint Response To Motion  
For Further Injunctive Relief**

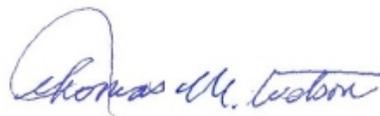
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I, Thomas M. Watson, declare as follows:

1. My curriculum vitae and/or résumé is attached hereto and incorporated herein by reference.
2. I have prepared the accompanying report entitled "Declaration and Expert Opinion on Comparison of Operations of Grand Coulee Dam with Criteria Proposed by Plaintiffs' Motion and 2004 Biological Opinion Criteria", dated November 22, 2005, the substance and form of which are hereby incorporated herein by reference.

I declare under penalty of perjury that the foregoing is true and correct.

Signed on November 22, 2005, at Helena, Montana.



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Thomas M. Watson, PE

DECLARATION AND EXPERT OPINION  
COMPARISON OF OPERATIONS OF GRAND COULEE DAM  
WITH CRITERIA PROPOSED BY PLAINTIFFS' MOTION  
AND 2004 BIOLOGICAL OPINION CRITERIA

The following facts and opinions are based, in part, on results from computer analyses of the Columbia River system performed and provided to the Confederated Tribes of the Colville Reservation (CTCR) by the Bonneville Power Administration (BPA).<sup>1</sup> The modeling by BPA begins in October 2005 as a starting point for analyzing the effect of each year in the BPA historic record (1929 through 1978). The 1929 hydrology was applied with conditions at the end of October 2005 as a starting point, and the model was run for a single year. The 1930 hydrology was applied with conditions at the end of October 2005 as a starting point, and the model was run for an additional year. This pattern was followed by BPA throughout the period of historic record, and the results were listed for each month and year from November through September to permit the evaluation of the range of conditions that may be expected from November 2005 through September 2006 based on operation of the Columbia River system of reservoirs using criteria proposed by the Plaintiffs<sup>2</sup> and criteria proposed in the 2004 Biological Opinion.<sup>3</sup>

The following analysis focuses on comparison of the Plaintiffs' proposal with the 2004 Biological Opinion related to operations of Grand Coulee Dam and Chief Joseph Dam on the Columbia River and within the Colville Indian Reservation.

Comparison of Releases from Grand Coulee Dam

1. Table 1 summarizes a comparison of releases from Grand Coulee Dam. The Plaintiffs' proposal would reduce releases from Grand Coulee Dam by 4.3 million acre-feet in January (55%) and by 626,000 acre-feet in February (13%) relative to the 2004 Biological Opinion. The Plaintiffs' proposal would increase release in May by 3,781,000 acre-feet (42%). During the summer recreation season in August, the plaintiff's proposal would cause an increase in releases of 542,000 acre-feet (14%) that will cause a significant reduction in the water surface elevation in Lake Roosevelt (see paragraph 2). Most of the change would occur in the first half of August. The Plaintiffs' proposal would reduce releases in September by 663,000 acre-feet (16%). The changes at Grand Coulee Dam

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<sup>1</sup> E-Mail From Roger Schiewe, BPA, November 10, 2005, First Installment on Data Request, to Mike Watson [Thomas M. Watson]; E-mail from Roger Schiewe, BPA, November 10, 2005, Second Installment on Data Request, to Mike Watson [Thomas M. Watson]; E-mail from Roger Schiewe, November 15, 2005, BPA, Spill Comparisons, to Mike Watson [Thomas M. Watson].

<sup>2</sup> National Wildlife Federation, *et al. v. National Marine Fisheries Service, et al, Plaintiffs Motion for Further Injunctive Relief*, October 31, 2005.

<sup>3</sup> National Marine Fisheries Service, November 30, 2004, *Endangered Species Act -- Section 7 Consultation, Biological Opinion, Consultation on Remand for Operation of the Columbia River Power System*, Revised and Reissued Pursuant to Court Order, Action Agencies: US Army Corps Of Engineers, Bonneville Power Administration, US Bureau Of Reclamation, Log Number: F/NWR/2004/00727.

proposed by plaintiffs reflect significant percentage variations from the 2004 Biological Opinion and from historical operations.

Comparison of Elevations in Lake Roosevelt

2. The change in release pattern presented in paragraph 1 affects the water surface elevations in Lake Roosevelt behind Grand Coulee Dam. Table 2 shows a 22.5' increase in water surface elevation in January corresponding to a 42% reduction

TABLE 1

COMPARISON OF RELEASES AT GRAND COULEE  
(AVERAGE 1929-1978 BPA HYDROLOGY, ACRE FEET)

	2004 BiOp	Plaintiff's Motion	Proposed Change	% Change
January	7,867,146	3,537,310	-4,329,836	-55%
February	4,703,236	4,077,267	-625,969	-13%
March	6,116,630	7,316,148	1,199,518	20%
April First Half	2,554,669	2,459,847	-94,821	-4%
April Second Half	3,621,236	3,720,848	99,611	3%
May	8,974,984	12,756,466	3,781,481	42%
June	10,145,781	10,441,580	295,799	3%
July	9,060,023	8,861,907	-198,116	-2%
August First Half	3,870,860	4,380,312	509,452	13%
August Second Half	3,284,359	3,317,681	33,323	1%
September	4,092,218	3,429,452	-662,767	-16%
October	-	-	-7,922	--
November	4,875,780	4,875,780	0	0%
December	5,458,888	5,459,133	246	0%
	74,625,810	74,633,732	0	--

TABLE 2

COMPARISON OF ELEVATIONS AT GRAND COULEE  
(AVERAGE 1929-1978 BPA HYDROLOGY, FEET)

	2004 BiOp	Plaintiff's Motion	Proposed Change
January	1,265.2	1,287.7	22.5
February	1,268.4	1,284.5	16.1
March	1,254.6	1,252.7	-2.0
April First Half	1,248.9	1,248.3	-0.6
April Second Half	1,243.4	1,241.6	-1.8
May	1,260.6	1,259.1	-1.6
June	1,287.0	1,286.9	0.0
July	1,288.2	1,286.6	-1.6
August First Half	1,281.9	1,273.8	-8.1
August Second Half	1,279.6	1,270.7	-8.9
September	1,285.0	1,285.0	0.0
October	-	-	
November	1,284.7	1,284.7	0.0
December	1,287.2	1,287.2	0.0

in release pattern with the Plaintiffs' proposal as contrasted with the 2004 Biological Opinion. Of concern to the CTCR is the 1.6' decline in water surface elevation in July followed by the 8.9' decline in water surface elevation in August (caused by release of 542,000 acre-feet in July and August with Plaintiffs' proposal) reducing the water surface elevation available for recreation, exposing larger areas of shoreline normally inundated and reducing retention time in Lake Roosevelt. Other experts of the CTCR address the consequences of lower elevations on recreation, cultural and historic resources and Lake Roosevelt fisheries.

#### Comparison of Water Retention Time in Lake Roosevelt

3. Water retention in Lake Roosevelt affects the food chain and other biological activity in the reservoir that impacts the Lake Roosevelt fishery. Table 3 compares water retention time in Lake Roosevelt caused by changes in release pattern from Grand Coulee Dam. Water retention would be significantly increased with the Plaintiffs' proposal in January and February (by 50 and 15 days, respectively). The reduction of retention time in August is 6 days with the Plaintiffs' proposal (relative to the 2004 Biological Opinion).

#### Comparison of Spills at Grand Coulee and Chief Joseph Dams and Total Dissolve Gases

4. The change in releases proposed by the Plaintiffs at Grand Coulee Dam would increase the spill from Grand Coulee and Chief Joseph Dams within the Colville Reservation as shown in Table 4. Spills at Grand Coulee Dam in May would increase an average 17,002 cfs-days with the Plaintiffs' proposal relative to the 2004 Biological Opinion. Similarly, the spills at Chief Joseph Dam in May would increase by 29,646 cfs-days. August spills at Grand Coulee Dam would increase slightly (373 cfs-days), and August spills at Chief Joseph Dam would increase by 4,575 cfs- days. The Plaintiffs' proposal does not address changes in total dissolved gas associated with the increases in spill that, if greater than the CTCR standard of 110%, adversely impact both anadromous and resident fish between Grand Coulee Dam and Chief Joseph Dam and further downstream.
5. Measurements of total dissolved gas (TDG) at the border between Canada and the United States averaged above 115% saturation in May through most of August during the period from 1997 through 2003. Total dissolved gas in the Grand Coulee Dam forebay is largely dependent on total dissolved gas at the international boundary and averaged from 110% to 115% saturation from mid-May through August during the same period of measurement from 1997 through 2003.<sup>4</sup> **It is reported that "...extremely high spring run-off in 1997 caused TDG levels in excess of 130% downstream from Grand Coulee Dam, resulting in high fish mortality both in wild resident fish and fish in aquaculture operations in Lake**

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<sup>4</sup> Environmental Protection Agency, June 2004, *Total Maximum Daily Load for Total Dissolve Gas in the Mid-Columbia River and Lake Roosevelt, Submittal Report*, Prepared cooperatively with the Washington State Department of Ecology and Spokane Tribe of Indians, page 31.

TABLE 3

COMPARISON OF RETENTION TIME AT GRAND COULEE  
(AVERAGE 1929-1978 BPA HYDROLOGY, DAYS)

	Grand Coulee		
	2004 BiOp	Plaintiff's Motion	Proposed Change
January	29	78	50
February	44	60	15
March	33	27	-6
April First Half	36	37	1
April Second Half	24	23	-1
May	24	17	-7
June	26	25	-1
July	31	31	0
August First Half	33	27	-6
August Second Half	40	37	-4
September	64	76	12
October	--	--	--
November	53	53	0
December	50	50	0

TABLE 4

COMPARISON OF SPILLS AT GRAND COULEE AND CHIEF JOSEPH DAMS  
(AVERAGE 1929-1978 BPA HYDROLOGY, CFS-DAYS)

	Grand Coulee			Chief Joseph		
	2004 BiOp	Plaintiff's Motion	Proposed Change	2004 BiOp	Plaintiff's Motion	Proposed Change
January	0	0	0	2,188	500	-1,688
February	0	0	0	500	500	0
March	0	0	0	602	1,305	703
April First Half	0	0	0	500	500	0
April Second Half	0	0	0	1,031	2,035	1,004
May	97	17,099	17,002	4,120	33,766	29,646
June	8,318	7,335	-983	18,899	18,392	-506
July	27	0	-27	5,251	3,717	-1,534
August First Half	0	373	373	971	5,545	4,575
August Second Half	0	0	0	747	883	136
September	0	0	0	500	500	0
October	--	--	--	--	--	--
November	0	0	0	500	500	0
December	0	0	0	500	500	0

Rufus Woods (between Grand Coulee Dam and Chief Joseph Dam)...”<sup>5</sup>  
Irrespective of the operation of releases at Grand Coulee Dam, whether through the power plant, outlet works or over the dam crest, the control of total dissolved gas is problematic. Measurements of total dissolved gases in the forebay of Chief Joseph Dam in 1999 ranged from 125% to 142% saturation, and measurements downstream from the dam were not significantly different.<sup>6</sup> There may be reason to believe that improvements in total dissolved gas concentrations in progress at the border between Canada and the United States and at Chief Joseph Dam will lower total dissolved gas levels closer to the 110% saturation level that reduces impact to resident and anadromous species, including endangered species, but those improvements are more distant than 2006. The Plaintiffs' proposal does not address the jeopardy from total dissolved gases to endangered species caused by additional spill and release from Grand Coulee Dam as described in paragraphs 1 and 4 above.

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<sup>5</sup> *Ibid.*, page 48.

<sup>6</sup> *Ibid.*, page 51.

UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON

NATIONAL WILDLIFE FEDERATION, et  
al.,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES  
SERVICE, et al.,

Defendants,

Civil No. 01-0640-RE (Lead Case)  
CV 05-0023-RE  
(Consolidated Cases)

**DECLARATION OF WHITFIELD A.  
RUSSELL Re Impacts To Colville  
Tribes' Share Of Power Revenues In  
Support of Regional Coalition's Joint  
Response To Motion For Further  
Injunctive Relief**

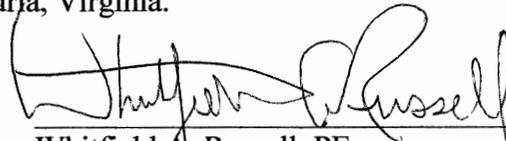
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I, Whitfield A. Russell, declare as follows:

1. My curriculum vitae and/or résumé is attached hereto and incorporated herein by reference.
2. I have prepared the following affidavit.

I declare under penalty of perjury that the foregoing is true and correct.

Signed on November 22, 2005, at Alexandria, Virginia.



Whitfield A. Russell, PE

**INTRODUCTION**

1. My name is Whitfield A. Russell. I am a public utility consultant and principal in Whitfield Russell Associates. I hold a Bachelor of Science degree in Electrical

Engineering from the University of Maine at Orono, a Master of Science degree in Electrical Engineering from the University of Maryland, and a Juris Doctor degree from Georgetown University Law Center. I have been accepted as an expert on bulk power electric systems in more than 150 proceedings before State and Federal courts, administrative agencies and other tribunals in approximately 30 States and in two Canadian provinces. My complete resume is attached as Exhibit WAR-1 to this Affidavit.

2. I have prepared this Affidavit on behalf of The Confederated Tribes of the Colville Reservation (the “Colville Tribes,” the “Tribes” or the “CTC”).<sup>1</sup> Under the “SETTLEMENT AGREEMENT Between the Confederated Tribes of the Colville Reservation and the United States of America,” (“Grand Coulee Dam Settlement Agreement”), the Colville Tribes is entitled to receive from the Bonneville Power Administration (“BPA”) an annual payment that was set initially at a level of \$15.25 million in 1995. That annual payment varies from year to year in accordance with a formula and can exceed \$15.25 million.
3. The purpose of this affidavit is to present (a) an estimate of the potential adverse economic effect upon the Colville Tribes of success by Plaintiffs in this proceeding and (b) a summary of the Tribes’ Grand Coulee Dam Settlement Agreement. More specifically, I was requested to determine whether the Tribes could expect to experience any serious adverse impacts as a result of implementation of Plaintiffs’ proposals in this proceeding and, in particular,

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<sup>1</sup> Although The Confederated Tribes of the Colville Reservation is nominally plural, the “Tribes” is commonly treated in the singular, as is the case with the United States.

whether there would be any potential impacts on annual payments to the Colville Tribes under the Tribes' Grand Coulee Dam Settlement Agreement.

4. Plaintiffs seek an alteration in the operation of the Federal Columbia River Power System ("FCRPS") as proposed in the Final Updated Proposed Action for the Biological Opinion Remand ("UPA"). NOAA Fisheries approved the UPA in its Revised 2004 Biological Opinion on the Operation of the Federal Columbia River Power System and 19 Bureau of Reclamation Projects ("2004 BiOp"). Plaintiffs seek to alter operation of the FCRPS in order to avoid (a) jeopardy to Columbia River Basin salmonids listed or proposed for listing under the Endangered Species Act and (b) adverse modification of designated critical habitat.
5. As is discussed in more detail below, implementation of Plaintiffs' proposal will materially lower both the annual amount of energy generated at Grand Coulee Dam and the average annual price at which BPA sells power. Because both of these factors affect the formula under which annual payments to the Tribes is calculated, Plaintiffs' proposal creates the potential for substantial reductions in future annual payments to the Tribes.
6. If Plaintiffs' Motions for Injunctive Relief and Further Injunctive Relief are granted, the Colville Tribes will be denied a substantial portion of its annual payment. The annual payment was \$15.25 million in fiscal year 1995 and rose to \$19.66 million in FY2000. Had Plaintiffs' proposal been in effect in FY2000, the annual payment would have dropped to \$17.77 million. In other words, based on

conditions in fiscal year 2000, implementation of Plaintiffs' proposals would have reduced the annual payment to the Tribes by \$1,891,055.

7. Lake Roosevelt is the body of water impounded by Grand Coulee Dam. In the ordinary course of operation of the FCRPS, water from Lake Roosevelt is released through the hydroelectric turbines embedded in Grand Coulee Dam in order to drive generators that produce electric energy and capacity for marketing and sale by BPA.<sup>2</sup> A motion filed recently by the Plaintiffs seeks a major new and additional drawdown of Lake Roosevelt in the summer of 2006 that would alter the pattern, amount and value of energy generated at Grand Coulee Dam and at other BPA hydroelectric facilities.

#### **Economic Effect of Plaintiffs' Motion on the Colville Tribes**

8. In the ordinary course of its business, BPA has developed computer models to determine the effect of alternative operating plans for the FCRPS upon streamflows, reservoir elevations, energy production at each dam and many other significant attributes of the FCRPS. These models are used to estimate the values of those attributes of the FCRPS under the assumption that any one of a variety of historical streamflow conditions is repeated. The models are also used to estimate the average effect of a repeat of historical streamflow conditions for multiple historical years.
9. I have received from BPA the results of its modeling of a repeat of historical streamflow conditions for each of the fiscal years 1998, 2000 and 2002 along with

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<sup>2</sup> In the electric industry, the combination of electrical capacity and/or energy is referred to as "power."

calculations of the effect of implementing Plaintiffs' proposals upon these simulated streamflows and the resulting average prices of BPA power and upon annual payments to the Tribes. BPA's analysts have informed me that they analyzed streamflows for FY1998, FY2000 and FY2002 because those streamflows were near the 50-year average streamflow and occurred in the post-FY1995 period during which annual payments have been made to the Colville Tribes. A spreadsheet summarizing those modeled simulations is attached as Exhibit WAR-2. I have discussed these modeled simulations with Mr. Jack Allison (a BPA official in charge of calculating the annual payments to the Colville Tribes) and with Mr. Roger Schiewe of BPA (an expert on modeling the relationships between reservoir levels, water flows and power production on the FCRPS). Based on my discussions with these BPA officials, I determined that these modeled simulations are reasonable and accurate. Mr. Allison provided me with the tabulation in Exhibit WAR-2 that indicates the effects that the Plaintiffs' proposals would have had on the annual payments to the Colville Tribes in FY1998, FY2000 and FY2002.

10. These spreadsheets indicate that implementing Plaintiffs' proposals would have reduced the annual payment to the Colville Tribes by \$993,908 with a repeat of FY1998 streamflow conditions, by \$1,891,055 with a repeat of FY2000 streamflow conditions and by \$1,513,972 with a repeat of FY2002 streamflow conditions. Whereas the 50-year average annual energy production at Grand Coulee Dam is 20,410,800 MWH (associated with the 50-year average annual

inflow of 81.5 million AF at Coulee), the actual energy production at Grand Coulee Dam was:

21,804,137 MWH in FY1998,

22,849,223 MWH in FY2000 and

19,963,331 MWH in FY2002.

11. Plaintiffs' proposals call for altering releases from Grand Coulee so as to draw down an additional 500,000 AF from Lake Roosevelt during certain out-migration seasons of each fiscal year (one out-migration occurs during the April-June period and another occurs during July, August and September). Irrespective of this proceeding and Plaintiffs' proposals, BPA is obligated to draw down Lake Roosevelt during the winter months for flood control in order to leave room for that reservoir to absorb the spring runoff (particularly water releases from Canadian reservoirs). Reservoirs must be maintained at or below a level specified in a so-called "upper rule curve." Ordinarily, it is BPA's practice to draw down Lake Roosevelt to levels well below those specified in the upper rule curve for January and February of each year so as to produce energy for sale at high prices that prevail in bulk power markets during those winter months in the Pacific Northwest. BPA is generally able to replenish Lake Roosevelt later in the water year by forgoing releases (and the associated energy production) during the spring runoff when prices in the bulk power markets tend to be lower than those that prevail in January and February. I understand that, if it is required to implement Plaintiffs' proposals, BPA will not be able to carry out its normal drawdowns of

Lake Roosevelt in January and February but will, instead, be required to operate at the upper rule curve in January, February, and March.

12. BPA normally plans to refill its reservoirs by July 1 of each year and maintain those reservoirs at relatively high levels through the summer months. If required to implement Plaintiffs' proposals, BPA will be required to make additional releases during the summer months, some of which will originate at Grand Coulee. Such releases will lower reservoir levels. When reservoirs are lowered, energy production from BPA's hydroelectric turbines is impaired in that each acre-foot of water is converted into fewer MWH of energy than the higher MWH amount of energy that would be produced from an acre-foot of water at higher reservoir elevations.
  
13. In order to implement Plaintiffs' proposals, BPA will be required to forgo releases at Grand Coulee of water and the associated energy production in January (1,567 MW-months), February (132 MW-months) and April 1-15 (85 MW-months). BPA will also lose energy production at Grand Coulee if it is required to increase releases pursuant to Plaintiffs' proposals in July (79 MW-months), August 16-31 (53 MW-months) and September (290 MW-months). In January and February, power prices tend to be quite high in the Pacific Northwest power markets (winter). In July through August, power prices tend to be quite high in the Pacific Southwest (summer). BPA is able to market substantial quantities of power for consumption in the Pacific Northwest and Pacific Southwest and routinely does so.

14. Plaintiffs' proposals will cause BPA water releases (and the associated energy production) to be forgone during high-priced winter periods and to be increased during low-priced spring runoff periods (when outmigration occurs). During summer months, an increase in releases will lower the reservoir elevations and reduce the amount of energy that can be produced from each acre-foot of released water. In addition, Plaintiffs' proposals require that water be spilled at several dams other than Grand Coulee, bypassing the hydroelectric turbines entirely and further reducing energy production. This reduction of energy production during high-priced months (both at Grand Coulee and at other BPA dams) will adversely affect BPA's power price and thereby lower the combined escalator applicable to the annual payment to the Colville Tribes.
  
15. Under the provisions of the Tribes' Grand Coulee Dam Settlement Agreement, there is not necessarily a one-to-one correlation in any given year between reduced energy production at Grand Coulee Dam and the annual payment to the Colville Tribes. That is, the Tribes can "borrow" against its entitlement to future annual payments to the extent that the annual payment in any given year falls below \$15.25 million as described more fully below. However, the Tribes must pay interest on the borrowings and repay both the borrowings and the interest on the borrowings out of its entitlements to future annual payments. Accordingly, I expect that implementation of Plaintiffs' proposals will cause Tribes either to receive annual payments lower than those it would otherwise be entitled to or to exercise its option to borrow against its entitlements to future annual payments and to incur obligations to pay interest that the Tribes would not otherwise incur.

## Details of Tribes' Grand Coulee Dam Settlement Agreement

16. Article 2 of the April 1994 "SETTLEMENT AGREEMENT Between the Confederated Tribes of the Colville Reservation and the United States of America" provides for an annual \$15.25 million payment beginning on March 1, 1996. Not later than March 1 of each succeeding year, BPA is obligated to pay the Tribes for the preceding BPA fiscal year an amount determined by multiplying the annual generation at Grand Coulee by a "price" calculated by a simple formula. The formula-determined annual payment is affected by the BPA price escalator and the combined escalator which is defined as the average of the BPA price escalator and the CPI. See Article 2(b)(1).
  
17. The annual payment can vary up or down from \$15.25 million based on the extent to which average annual generation at Grand Coulee differs from the 50-year computer-simulated average annual generation of 20,410,800 MWH and upon the value of applicable escalators. The annual payment is determined in a multi-step procedure. First, a "base price" of 0.747153 mills/kWh was determined based on \$15.25 million divided by 20,410,800 MWH, the 50-year average annual Grand Coulee generation. That price is multiplied each year by a BPA price escalator and by Grand Coulee generation in the applicable fiscal year in order to determine a "base annual charge." The BPA price escalator is calculated from fiscal year total BPA revenues divided by fiscal year total BPA generation. That result is divided by the base price for FY1995 calculated above. See Articles 1(b), 1(c) and 2(b)(1).

18. The annual payment for a fiscal year shall be the base annual charge, except that, if the base annual charge is less than the “floor annual charge,” the annual payment will be the “floor annual charge.” If the base annual charge is greater than the “ceiling annual charge,” then the annual payment shall be the “ceiling annual charge.” Article 2(b)(3). That is, the annual payment can range between the “floor annual charge” and “ceiling annual charge,” which are constrained within a defined range above and below \$15.25 million (escalated). The Grand Coulee Settlement Agreement accomplishes this bracketing by setting a “floor price” and a “ceiling price,” each of which is multiplied by the annual generation and by the combined escalator, to arrive at the “floor annual charge” and “ceiling annual charge,” respectively. Article 2(b)(2) sets a fixed “floor price” of 0.661414 mills/kWh and a fixed “ceiling price” of 0.832892 mills/kWh. The “floor annual charge” is calculated as the “floor price” times Grand Coulee generation during the fiscal year times the combined escalator. Conversely, a “ceiling annual charge” is calculated as the “ceiling price” times Grand Coulee fiscal year generation times the combined escalator.
19. Under Article 2(d), the Tribes have the option of taking a payment of \$15.25 million if the computed annual payment falls below \$15.25 million. The difference between the \$15.25 million option payment received and the lower computed annual payment is deemed to be a loan to the Tribes from BPA with interest on the loan set at the weighted average cost of debt for all BPA’s borrowings with a term of more than one year or, if there are no such borrowings,

then at the rate paid by the United States on 1-year notes for the period in question.

20. The Tribes can repay the loan at any time, but, if the computed annual payment in any subsequent fiscal year exceeds \$15.25 million, the loan balance shall be deducted from the annual payment and be applied to repayment of the loan. If the deduction causes the Tribes to receive a residual amount of less than \$15.25 million, the Tribes can exercise their option under Article 2(c) to take \$15.25 million. The excess of the \$15.25 million option payment over the lower, recomputed annual payment shall remain as a loan to be deducted from subsequent annual payments.
21. This concludes my affidavit.

**WHITFIELD A. RUSSELL**

Whitfield A. Russell is an electrical engineer, attorney and President of Whitfield A. Russell and Associates, P.C., a corporate Partner of Whitfield Russell Associates. He holds a Bachelor of Science degree in Electrical Engineering from the University of Maine at Orono, a Master of Science in Electrical Engineering from the University of Maryland, and a Juris Doctor degree from Georgetown University Law Center.

Mr. Russell is experienced in electric utility system planning (transmission and generation), ratemaking and bulk power contracts. Mr. Russell has been qualified as an expert witness in 27 states (as well as in the Provinces of Alberta and Manitoba and the District of Columbia) and has been accepted as an expert in approximately 150 proceedings before state and federal Courts, arbitration panels, public service commissions, the Federal Energy Regulatory Commission and other administrative agencies. Mr. Russell's clients have included public power utilities, state and federal power marketing agencies, investor owned utilities, independent power producers, and State regulatory bodies and their staffs. For a number of years, he controlled a company that owned and operated two small hydroelectric generating projects that were PURPA Qualifying Facilities.

Mr. Russell founded Whitfield Russell Associates in 1976. From 1972 to 1976, Mr. Russell served as Engineer and subsequently as Chief Engineer, at the Division of Corporate Regulation of the Securities and Exchange Commission. The Division administered the Public Utility Holding Company Act of 1935.

From 1971 to 1972, Mr. Russell was on the staff of the Federal Power Commission. He served as a consultant to staff attorneys in proceedings, and as an expert witness in an administrative proceeding before the Atomic Energy Commission.

From 1969 to 1971, Mr. Russell served as an Associate Engineer in the System Planning Division of the Potomac Electric Power Company. At PEPCO, he conducted system studies of load flows and stability. He was also a member of numerous study groups concerned with planning and operation of the Pennsylvania-New Jersey-Maryland Interconnection.

Exhibit WRA-2

		Average = 133.32 MAF	141.28 MAF		130.36 MAF	126.56 MAF	
Original	Sec	Term	FY95	FY98	FY98	FY2000	FY2002
	1a	Power Sales Revenue (\$)	2,181,536,000	2,039,880,000	2,124,207,300	2,763,772,000	3,080,682,632
	1b	BPA Power Sales (MWh)	80,390,635	89,049,385	89,049,385	88,456,250	101,341,981
		BPA Power Sales Price (m/k)	27.136693	22.907289	23.854261	31.244508	30.398879
	1c	BPA Price Escalator		0.844144	0.879041	1.151375	1.120213
	1d	Consumer Price Index (CPIU)	152.966667	163.600000	163.600000	173.700000	181.000000
		CPI Escalator	1.000000	1.069514	1.069514	1.135542	1.183264
	1e	Combined Escalator		0.956829	0.974277	1.143458	1.151739
	1f	Grand Coulee Generation (MWh)		21,804,137	21,804,137	22,849,223	19,963,331
	2b(1)	Base Annual Charge (\$)		13,751,979	14,320,477	19,656,118	16,708,720
	2b(2)	Floor Annual Charge (\$)		13,798,972	14,050,602	17,280,851	15,207,588
		Ceiling Annual Charge (\$)		17,376,489	17,693,357	21,761,079	19,150,303
	2b(3)	Computed Annual Payment (\$)	15,250,000	13,798,972	14,320,477	19,656,118	16,708,720

Base Annual Charge = 0.747153 x 1c x 1f.

Floor Annual Charge = 0.661414 x 1e x 1f.

Ceiling Annual Charge = 0.832892 x 1e x 1f.

Base Annual Charge = 0.747153 x BPA Price Escalator x Grand Coulee Generation

Floor Annual Charge = 0.661414 x Combined Escalator x Grand Coulee Generation.

Ceiling Annual Charge = 0.832892 x Combined Escalator x Grand Coulee Generation.

With PL Motion	1a	Power Sales Revenue (\$)	2,181,536,000	1,692,600,656	1,776,927,956	2,416,492,656	2,733,403,288
	1b	BPA Power Sales (MWh)	80,390,635	84,873,630	84,873,630	84,280,495	97,166,227
		BPA Power Sales Price (m/k)	27.13669322	19.9425976	20.93616062	28.67202723	28.13120758
	1c	BPA Price Escalator		0.734894	0.771507	1.056578	1.036648
	1d	Consumer Price Index (CPIU)	152.966667	163.600000	163.600000	173.700000	181.000000
		CPI Escalator	1.000000	1.069514	1.069514	1.135542	1.183264
	1e	Combined Escalator		0.902204	0.920511	1.096060	1.109956
	1f	Grand Coulee Generation (MWh)		21,458,706	21,458,706	22,503,793	19,617,901
	2b(1)	Base Annual Charge (\$)		11,782,512	12,369,530	17,765,063	15,194,749
	2b(2)	Floor Annual Charge (\$)		12,805,063	13,064,891	16,314,107	14,402,298
		Ceiling Annual Charge (\$)		16,124,900	16,452,091	20,543,697	18,136,234
	2b(3)	Computed Annual Payment (\$)	15,250,000	12,805,063	13,064,891	17,765,063	15,194,749

	FY98	FY98	FY2000	FY2002
Difference, + = a decrease in the payment	Final Calculation \$993,908	Paid \$1,255,586	\$1,891,055	\$1,513,972

UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON

NATIONAL WILDLIFE FEDERATION, et  
al.,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES  
SERVICE, et al.,

Defendants,

Civil No. 01-0640-RE (Lead Case)  
CV 05-0023-RE  
(Consolidated Cases)

**DECLARATION OF GERALD  
MARCO, Colville Tribes' Senior  
Fisheries Biologist, In Support of  
Regional Coalition's Joint Response To  
Motion For Further Injunctive Relief**

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I the undersigned Gerald Marco do hereby declare and state as follows:

- 1) I am employed by the Confederated Tribes of the Colville Reservation as the Senior Fishery Biologist in the Tribal Fish and Wildlife Department. I have been in this position since 1976. I received a B.S. in Fisheries from Humboldt State University, Arcata, California.
- 2) As Senior Fishery Biologist, I am responsible for assisting the Tribal Fish and Wildlife Director in the development, oversight and administration of all fishery related policy and management activities of the Confederated Tribes of the Colville Reservation. I am responsible for the Colville Tribes' participation in many Columbia River basin resident and anadromous fish management activities, in most cases through direct participation.

- 3) I have assisted the Colville Tribes in its preparation of the amicus motion in this litigation. I have participated in various discussions with representatives from federal and state agencies, upriver tribes and private parties. I have reviewed model results of operational changes that would occur over the different water years as a result of the current BiOp and the plaintiffs' motion as they relate to operational changes associated with Lake Roosevelt, the storage reservoir behind Grand Coulee Dam. My declaration for the most part will address the expected biological effects of the spring and summer flow proposals contained within the Plaintiff's motion.
- 4) The Plaintiff's proposal requires the operation of all storage reservoirs (including Canadian storage reservoirs) at the upper rule curve (URC) from February through March in order to better meet the April 10<sup>th</sup> URC which, based on their premise, will provide additional stored water and allow for higher spring flows in the mid and lower Columbia River.
- 5) While the anadromous fish survival benefits to spring migrants from the Plaintiff's spring flow proposal appear uncertain (**see Declaration of Michael Schiewe**), based on the best available science the negative impacts to Lake Roosevelt resident fish are significant.
- 6) Two important resident fish species, adfluvial rainbow trout and kokanee spawn and rear within the reservoir and its tributaries and provide subsistence fishing opportunities for tribal members as well as recreational fishing opportunities. In addition, these fisheries are being supplemented with hatchery produced kokanee and net pen reared rainbow trout as mitigation for the loss of anadromous fish

caused by the construction of Grand Coulee Dam. These mitigation efforts are measures in the Northwest Power and Conservation Council's Fish and Wildlife Program and were developed by the Colville Tribes, Spokane Tribe of Indians and the Washington Department of Fish and Wildlife who jointly manage the resident fish resources in Lake Roosevelt.

- 7) Over the past twenty years, studies have been conducted on Lake Roosevelt to determine the effects of water management on the biota of the lake and to develop recommendations for the protection and enhancement of the resident fishery.
- 8) Studies conducted by the U.S. Fish and Wildlife Service, Beckman et.al. 1985, raised the importance of reservoir water retention time (WRT) during the "growing season", the spring through late summer period. The study noted that retention times were approximately 30 days in May of 1981 and 16 days in May 1982 and that zooplankton abundance was five times higher in May of 1981 compared to May of 1982. Water retention time affects nutrient availability and phytoplankton productivity, which provides for zooplankton production. The study identified a WRT threshold for affecting zooplankton densities of about 30 days.
- 9) Further investigations in the 1990's have examined the biota of Lake Roosevelt and found similar results and conclusions Peone et.al. 1990, Griffith and Scholz 1991, and Thatcher et.al. 1993. As mean WRT during the growing season decline, zooplankton standing crops also decline.

- 10) In reviewing several recent annual reports from the Lake Roosevelt Monitoring and Evaluation Program (1999-2001), the water retention/zooplankton production trend continues to be consistent with earlier study results.
- 11) Griffith et. al. 1993 developed the minimum water retention time necessary to produce a healthy standing crop of *Daphnia*, the most important food item of Lake Roosevelt kokanee and recommended that the reservoir be operated to ensure a 36-40 day minimum water retention time, except when high runoff conditions make this unachievable.
- 12) In addition to reservoir productivity impacts associated with the Plaintiff's proposal, also direct fish entrainment will be increased as a result of substantially higher May outflows at Grand Coulee Dam. Thatcher et.al. 1991 reported net pen rainbow trout entrainment from Grand Coulee Dam was related to water retention time as well as time of release. This study investigated the relationship between tag recoveries of net pen rainbow trout and spring retention time. Results indicated as WRT decreased, entrainment from Grand Coulee increased. The estimated entrainment rate was 26% for a water retention time of 31 days and 60% for a WRT of 20 days.
- 13) In reviewing the modeling runs for operational changes at Grand Coulee associated with the Plaintiff's proposal and comparing these to the current BiOp operations, I observed a significant change in water retention time during the month of May for the Plaintiff's proposal. There is a 28% reduction in mean WRT (23 days) compared to the current BiOp water retention time for May of 32days.

- 14) The Plaintiff's proposal requests an additional 630,000 acre-feet (630 KAF) of water from upper Columbia River storage to increase summer flow augmentation for the benefit of Snake River Fall Chinook. They identify 130 KAF from Banks Lake and the additional 500 KAF from either Grand Coulee or Canadian storage.
- 15) The additional 500 KAF is unlikely to be secured from Canadian storage reservoirs since it would require agreement from the Canadian Government, therefore the assumption is the 500 KAF would be provided from Grand Coulee and result in an additional 8 to 10 foot drawdown of Lake Roosevelt resulting in a late August elevation of 1270 to 1272 depending on the water year.
- 16) This proposed drawdown would have negative impacts on the resident fish populations in Lake Roosevelt. It would further reduce the water retention time during the zooplankton growing season (May-September) and result in lower zooplankton density and biomass values (Beckman et. al. 1985; Griffith et. al. 1993). High zooplankton density and biomass are important because they provide the forage base for salmonids (kokanee and rainbow trout) within the reservoir. When zooplankton densities and biomass are robust, improved growth rates of salmonids are observed. Higher salmonid growth rates result in increased fecundity and greater energy stores necessary for improved survival (Thatcher et. al. 1993).
- 17) Another impact of lower summer water retention times is the increase of fish entrainment or loss of fish through the turbine intakes during the summer months. Based on the fish entrainment studies conducted at Grand Coulee Dam over a 42 month period during 1996 through 1999 (LeCaire, 1999) more than fifty percent

of the annual fish entrainment at Grand Coulee occurs in the months of July and August.

- 18) All of the annual hatchery supplementation production of kokanee and rainbow trout are released during the late spring and early summer period due to water temperature constraints that develop during early in the summer and prevent later fish releases. All of this hatchery production is part of the resident fish substitution program under the Northwest Power and Conservation Council's Fish and Wildlife Program and is provided as mitigation for lost anadromous fish production resulting from the construction of Grand Coulee Dam and currently provides a source of subsistence fishing for Colville and Spokane Tribal members as well as providing recreational sportfishing opportunities.
- 19) Based on net pen rainbow trout entrainment at Grand Coulee relative to tag recoveries, Thatcher et. al. 1991 found the following: As water retention time decreased, losses over Grand Coulee Dam increased: 0% at 43 days of WRT, 74% at 31 days of WRT and 40% at 20 days of WRT. Based on the modeling results, it appears that on average the Plaintiff's proposal would reduce summer retention time by approximately 6 days (31 days vs. 37 days) compared to the existing BiOp operations, and thus substantially increase entrainment over the existing operations.
- 20) A third impact associated with the Plaintiff's proposal is the physical loss of nearshore resident fish spawning and rearing habitat as a result of an additional 8 to 10 feet of drawdown. This habitat provides an important ecological niche for many of the fish species utilizing this habitat during the summer months.

- 21) Studies conducted by the Colville Tribes Fish and Wildlife Department since 1998 have identified as many as 23 different resident fish species utilizing this nearshore habitat. According to Monte Miller, tribal biologist on this study over the past five years, the shallow water nearshore habitat on Lake Roosevelt, which would amount to several thousand acres, will be completely dewatered in late August as a result of the elevation associated with an additional 10-foot drawdown. In addition, hundreds of thousands of larval resident fish will become subject to stranding and entrapment or more likely desiccated as a result of complete dewatering (unpublished report, personal communication).
- 22) One additional impact of the Plaintiff's proposal associated with resident fish is the loss of fishing access as a result of an additional 8 to 10 foot drawdown of the reservoir. As many as seven of the seventeen public boat launch sites located on the reservoir will become unusable for all or for some period of time during the summer drawdown period.
- 23) I have used the following references in preparing this Declaration:

Beckman, L.G., J.F. Novotny, W.R. Parsons and T.T. Tarvell. 1985. Assessment of the fisheries and limnology of Lake F.D. Roosevelt 1980-83. U.S. Fish and Wildlife Service. Final Report to the U.S. Bureau of Reclamation. 168pp.

Griffith, J.R. and A.T. Scholz, 1991. Lake Roosevelt Fisheries Monitoring Program. Annual Report 1990. U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 218pp.

Griffith, J.R., A.C. McDowell and A.T. Scholz. 1993. Lake Roosevelt Systems Operations Review: Annual Report 1991. U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 234pp.

LeCaire, R. 1999. Chief Joseph Kokanee Enhancement Project, 1999 Annual Report and Final Report on Entrainment at Grand Coulee Dam 96-99. Colville Confederated Tribes Fish and Wildlife Department. Prepared for the U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR.

Miller, M.D. 2005. Lake Roosevelt Monitoring Project 1999-2000 Draft Annual Report, Colville Confederated Tribes Fish and Wildlife Department, Nespelem, WA. Prepared for Dept. of Energy, Bonneville Power Administration, Portland, OR.

Peone, T., A.T. Scholz, J.R. Griffith, S. Graves and Thatcher. 1990. Lake Roosevelt Fisheries Monitoring Program: Annual Report 1988 and 1989. U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 234pp.

Thatcher, M.G., J.R. Griffith, A.C. McDowell and A.T. Scholz. 1993. Lake Roosevelt Fisheries Monitoring Program. Annual Report 1991. U.S. Dept. of Energy, Bonneville Power Administration, Portland, OR. 237pp.

- 24) 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, based on my education, experience and professional judgment.

EXECUTED November 22, 2005, at Nespelem, WA.

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s/Gerald Marco  
Gerald Marco, Senior Fishery Biologist  
Confederated Tribes of the Colville Reservation

UNITED STATES DISTRICT COURT  
DISTRICT OF OREGON

NATIONAL WILDLIFE FEDERATION, et  
al.,

Plaintiffs,

v.

NATIONAL MARINE FISHERIES  
SERVICE, et al.,

Defendants,

Civil No. 01-0640-RE (Lead Case)  
CV 05-0023-RE  
(Consolidated Cases)

**DECLARATION OF GUY MOURA,  
Colville Tribes' Traditional Cultural  
Property Coordinator, In Support of  
Regional Coalition's Joint Response To  
Motion For Further Injunctive Relief**

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I the undersigned Guy Moura hereby declare and state as follows:

1. I am employed as the Traditional Cultural Property Coordinator in the History/  
Archaeology Program of the Confederated Tribes of the Colville Reservation  
(Colville Tribes). I have held this position with the Colville Tribes for seven  
years. Prior to my current position, I conducted archaeological and  
anthropological work since 1972 and have worked in the Pacific Northwest since  
1978. I was awarded a B. A. in Anthropology in 1977 from the University of  
Maine, Orono campus; in addition I hold a B. A. in Education with a double  
major in Anthropology and History from Central Washington University as well  
as a 5<sup>th</sup> Year Teaching Certification. I make this statement in my professional  
capacity.

2. The Colville Tribes manages cultural resources within the Lake Roosevelt area under numerous authorities, most notable are: 1.) The 1990 Lake Roosevelt Cooperative Management Agreement wherein the Bureau of Reclamation, Colville Tribes, Spokane Tribe of Indians and the National Park Service apportioned responsibility for various management roles in and around Lake Roosevelt. 2.) The National Historic Preservation Act (NHPA), Tribal Historic Preservation Officer assumption of State Historic Preservation Officer responsibilities on the Colville Reservation and other trust lands, which includes significant portions of Lake Roosevelt; and, 3) The Federal Columbia River Power System (FCRPS) cooperative working group for the management of cultural resources on Lake Roosevelt. The FCRPS workgroup includes the Colville Tribes, Bonneville Power Administration, the Spokane Tribe of Indians and the Bureau of Reclamation in the distribution, implementation, and administration of federal NHPA Section 106 compliance funding in Lake Roosevelt
  3. I have assisted the Colville Tribes' Historic Preservation Officer in reviewing the proposed changes in operations for Lake Roosevelt that plaintiffs' are seeking in their motion for further injunctive relief. Our office is particularly concerned about the proposal for a new summer drawdown of 500,000 acre feet (AF). We understand that this would result in lowering Lake Roosevelt by an additional 8 to 10 feet in August and perhaps part of July, compared to previous years. The resulting elevation would be approximately 1270 feet. Principal concerns associated with this new drawdown are: potential for exposure and inadvertent
- 2 Declaration of Guy Moura In Support of Regional Coalition's Joint Response to Motion For Further Injunctive Relief

disturbance of human remains at the 25 known burial sites affected by this drawdown; potential for exposure and disturbance of 133 known archaeological sites affected by this drawdown; increased need for monitoring and patrols.

**4. Impacts to Burial Sites and Inadvertent Disturbance of Human Remains.**

Thousands of Native Americans lived along the shores of the Columbia River for ten thousand years. Cemeteries are concentrated near villages, but burials may be encountered almost anywhere. The backwaters of Grand Coulee Dam inundate all the burial and cemetery locations along the river's original channel. As the old shorelines are eroded and exposed, the remains of tribal ancestors are exposed. Exposure of ancient remains is due to reservoir effects and, thus, the cost for recovery, treatment, reburial, and the associated reburial dinner are the responsibility those undertaking actions on the lake. Drawdown creates increased erosion to and exposure of the near-shore banks and beaches during the peak recreation period. This increases the number and visibility of burial sites and human remains exposed. More erosion, more exposure, more people means at least a threefold increase for the potential of burial and archaeological site looting and both intentional and naive destruction and desecration of our ancestors' final resting places.

**5. Monitoring of Archaeological Sites.**

Drawdown creates increased erosion to and exposure of the near-shore banks and beaches during the peak recreation period. This will increase the number and visibility of archaeological materials. Wakes and shoreline recreation related to boat and jet-ski activities will result in increased erosion because impacts will not

be along vegetated shores and areas of high water erosion protection. More erosion, more exposure, more people means archaeological materials will be exposed. These exposures necessitate increased monitoring throughout the drawdown period.

**6. Need for Increased ARPA Patrols.**

The Archaeological Resources Protection Act (ARPA) protects Native American burials and archaeological sites on federal and Indian Lands. All of the lands associated with Lake Roosevelt are under federal or tribal management. The greatly increased exposure of our ancestral burials and the archaeological remains of our people requires increased ARPA patrols and anticipated ARPA investigations and prosecutions.

7. 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, based on my education, experience and professional judgment.

EXECUTED November 22, 2005, at Nespelem, WA.

s/Guy Moura  
Guy Moura, Traditional Cultural Property Coordinator  
Confederated Tribes of the Colville Reservation

**COMMENTER**

**RESPONSES**

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**MOSES, HARVEY**

Colville  
Confederated  
Tribes

1. The Council on Environmental Quality's regulations (40 CFR §§1500 - 1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. §§ 4321 et seq.), define cumulative effects as: the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR ~ 1508.7). We recognize your concerns surrounding the Columbia River Initiative CRI process. The State of Washington recently passed a new law on the Columbia River Basin Water Supply that will become effective on July 1, 2006, but its implementation and implications are not clear at this time. We also acknowledge that the ongoing remand process related to the NOAA Fisheries BiOp could result in changes to the Action Agencies' operation of Federal Columbia River Power System dams. However, at this time, it is premature to include potential changes in the FCRPS operations that are under discussion in the remand process, as such changes are speculative and not reasonably foreseeable. We do not anticipate that these or other actions will result in changes outside of the current scope of system operations, but will consider whether additional NEPA documentation is necessary as new operations are identified. Therefore, we are moving forward with implementation of the preferred alternative in this FEIS based on the best available information at this time.

2. Comment noted. As described above in Response to Comment 1, the ongoing remand process related to the NOAA Fisheries Biological Opinion could result in changes to the Action Agencies' operation of Federal Columbia River Power System dams; however, it is premature to speculate what, if any changes will result. Therefore, a basis for inclusion as "reasonably foreseeable" actions in the Cumulative Effects section of the EIS is lacking. In addition, it is important to understand that any proposed or implemented operations are reversible. In the event a change in operations results from the remand process, we would consider whether this change required additional NEPA documentation. We are moving forward based on the best available information we have at this time.

3. The DEIS analyzes the effects of Lake Roosevelt water levels on resources including cultural resources, water quality standards, and environmental health in Chapter 5.

Kalispell Public Meeting, November 29, 2005

1 MR. ROACHE: Next is Bill Myers.

2 MR. MYERS: Bill Myers representing Bayside  
3 Park and Marine Center, Pointer Scenic Cruises and  
4 Accommodations, Flathead Lake, in Bigfork. I just  
5 received, about two weeks ago, about a five-inch-thick  
6 stack of documents on this. I have not had any time to  
7 review them, so I'm basically going from information,  
8 as I understand it, from all previous meetings on VARQ  
9 that I've attended, and the little bit that I've looked  
10 in the synopsis executive summary.

11 I think, and I've thought all along, that the  
12 process here has been prescribed on this DEIS, and the  
13 whole process of VARQ, to achieve specific results that  
14 were determined ahead of time. The term "flood  
15 control" really talks about desired releases,  
16 especially for anadromous salmon.

17 There seems to me that there was not an  
18 adequate consideration of a full range of options.  
19 Basically we came into this whole process, VARQ was the  
20 option, that it was either VARQ or the current regime,  
21 but not a series of different alternatives, which is  
22 typically required under NEPA for a DEIS like this.

23 The reason I bring that up, it seems to me,  
24 having been a part of the entire SOR process that  
25 started about 1990 and followed through for about five

1

2

2

1 or six years for the whole operation of the Columbia,  
2 at that time the anadromous fish were the only ones  
3 listed, the salmon. So our bull trout were not fully  
4 considered due to that.

5 Also, at that time of the SOR, we were  
6 assured repeatedly that any operations of Hungry Horse  
7 would not have any adverse impact on Flathead Lake in  
8 the full-pool elevation. And that was an assurance we  
9 received repeatedly during that process, dating from  
10 about 1990 to the final decisions, about '96 or '97.

3

11 I would bring to your attention specifically  
12 the Army Corps of Engineer's agreement of 1964  
13 regarding the -- what we call the full-pool operation  
14 of Flathead Lake, the Memorandum of Understanding that  
15 is commonly referred to. That clearly predates all the  
16 SOR and issues regarding the fish, and it seems to me,  
17 as someone who's a business or relies on the Flathead  
18 Lake being in full pool, that, out of the whole scheme  
19 of things, the level of Flathead Lake and that issue  
20 has not been fully addressed, in terms of the impact of  
21 how you run Hungry Horse on the lake level of Flathead  
22 Lake.

23 This was borne out several years ago when we  
24 had a drought. And specifically my comments are  
25 dealing with the drought conditions, not a flood

1 situation, because I think we'd be in agreement on the  
2 flood-control issues. And on a normal water year, I  
3 wouldn't have any problem. But my specific comments  
4 here are dealing with situations of drought.

5 I would refer you to the FERC document on the  
6 operation of Kerr Dam. And I would specifically ask  
7 you to look at the 1977 water year, I believe it was,  
8 that was the model year drought condition. When the 4E  
9 conditions that are the operating standards of Kerr Dam  
10 went into place, we had a problem several years ago  
11 because of the mandated discharges under 4E at Kerr Dam  
12 and the lack of compensation coming from Hungry Horse  
13 to mitigate against that where the sacrifice zone was  
14 Flathead Lake.

15 It seems that, in the scheme of things, often  
16 Montana is considered the national sacrifice zone. And  
17 this seems to be one of those examples where this whole  
18 plan, which again, back in the '90s, we were assured  
19 that the operation of Hungry Horse would not result in  
20 a problem for refilling of Flathead Lake and keeping it  
21 in full pool, and yet we indeed did find, about  
22 four years, when we had drought, that there was a  
23 problem.

24 There were minor augmentation flows done from  
25 Hungry Horse to help with that drought situation, but,

3

1 when I say "minor," Flathead Lake most of the summer  
2 was down two feet from full pool, and it could have  
3 been much worse.

4

4 It seems to me that we need a more-united  
5 operation in a series of dams. Bruce Measure has  
6 already mentioned something I would support; and that  
7 is, the Northwest Power Planning Council has  
8 recommended what are called the main-stem amendments by  
9 most of us. Also, it seems to me that there's no use  
10 of fully integrated rule curves, IRCs, that could have  
11 been better done here.

5

12 And a combination of some of these things  
13 would mean that we could still have Flathead Lake at  
14 full pool even in drought years. It would mean that we  
15 would have to sacrifice at the level of the reservoir  
16 up at Hungry Horse.

6

17 And I emphasize the word "reservoir" here,  
18 because Hungry Horse is a man-made reservoir and should  
19 serve at the pleasure of downstream usage for  
20 generation of power, of beneficial fisheries, and  
21 recreational purposes. So if there has to be a  
22 sacrifice area, it seems to me it should be the  
23 reservoir at Hungry Horse, not Flathead Lake.

7

24 Finally, dealing with the bull-trout issues a  
25 little more specifically, it seems to me that it does

1 not have to be bull trout versus anadromous fish. It  
2 could be and should be a win-win situation where we  
3 don't play one against the other. And it's been  
4 proven, it seems like, in some of the data that I've  
5 looked at in the reviews, that flow augmentation may  
6 have some beneficial impact, but it is not ascertained  
7 that it is a definite beneficial impact for the salmon  
8 in any significant consequential way that should  
9 sacrifice our local bull trout here, what are called  
10 the resident species.

11 I would point out that, in the original  
12 record of decision for the SOR, dating back to the  
13 mid '90s, only the anadromous fish, the salmon at that  
14 time, were the listed species, and all the work that  
15 was done by NOAA Fisheries was specifically working for  
16 the benefit of salmon.

17 Since that time, as we know, bull trout have  
18 now been listed, and it should have equal status. But  
19 it seems like they really don't have equal status in  
20 these decisions. It seems like what usually happens  
21 here is the anadromous fish get all the attempts to  
22 increase and augment the flow to help the anadromous  
23 fish. But it sometimes and often may be at the expense  
24 of our local bull trout.

25 In conclusion, I would point out to you that

1 this decision, while it talks about being for flood  
2 control, because it does have specific releases  
3 throughout the spring and summer months that flow  
4 through from Hungry Horse through our Flathead Lake and  
5 through Kerr downstream to Lake Roosevelt for the  
6 benefit of the anadromous fish, this does have  
7 potential and obvious economic impacts on Montana.

8           When Flathead Lake is below full pool and  
9 people can't use their docks, when Marina's are high  
10 and dry, and when it impacts commercial operators like  
11 myself, it does have an impact on the local economy  
12 here that is very dependent on a three-month season.

13           I would urge you to consider, in a united  
14 method, all the dams up and downstream, and not just  
15 look and say this is for flood control, but look at the  
16 entire impact. And Flathead Lake is the first impact  
17 that this DEIS would have an impact on. If mandated  
18 releases happen for the anadromous fish and don't  
19 compensate for our Flathead Lake level, this has a very  
20 serious impact on Montana. And I think that needs to  
21 be taken into consideration in this process.

22           Thank you.

23           MR. LECHEFSKY: Thanks, Bill.

**COMMENTER**

**RESPONSES**

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**MYERS, BILL**

Draft EIS Public Meeting, Nov 29, 2005, Kalispell, MT (transcript)

1. As required by the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR 1502.14), the EIS has adequately considered a reasonable set of alternatives that meet this project's purpose, which is "to provide reservoir and flow conditions at and below Libby and Hungry Horse Dams for anadromous and resident fish listed as threatened or endangered under the ESA, consistent with authorized project purposes including maintaining the current level of flood control benefits." VARQ flood control does in fact provide greater operational flexibility that allows flows to benefit salmon and steelhead in the lower Columbia River, as well as resident species such as bull trout in the Flathead River. NEPA does not require consideration of alternatives that do not meet the purpose and need; there were alternatives that were considered but not selected for a detailed evaluation, as discussed in Section 2.5 of the EIS.

2. Comment noted. The preferred alternative should benefit bull trout in the Flathead River as noted in Section 4.3.4 of the EIS.

3. Operation of Flathead Lake to assure higher refill levels is outside of the scope of this EIS. The appropriate avenue for Flathead Lake management concerns is the EIS process for Flathead Lake drought management, by the Bureau of Indian Affairs. The Memorandum of Agreement (MOU) between the Corps of Engineers and Montana Power Company was completed in 1962 and revised in 1965. The MOU outlines a flood control plan which requires Montana Power Company to draft Flathead Lake to elevation 2883.0 feet on or about April 15 or each year. The lake can be raised to elevation 2890.0 feet by May 30. Flathead Lake may be filled to elevation 2893.0 (normal full pool) by the later of June 15 or when the threat of flooding (as determined by the Corps) has passed. The MOU does not direct the Bureau of Reclamation to keep Flathead Lake full by drafting Hungry Horse Reservoir

4. As Federal agencies responsible for managing and operating Federal hydroelectric facilities, the Corps and Reclamation must take into account the Northwest Power and Conservation Council's Fish and Wildlife Program and Mainstem Amendments in the decision-making process. The Mainstem Amendment recommendations for summer operations at Libby and Hungry Horse dams, consisting of stable or flat flows that extend into September with a 10 foot draft limit in most years, differ from the operations analyzed the 2004 NOAA Fisheries Biological Opinion (2004 BiOp). However, the operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. The summer operations recommended in the Mainstem Amendments for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents; therefore, no further NEPA analysis would be needed if these recommendations are adopted at a later date.

5. As stated in Sec. 2.5 of the EIS, Integrated Rule Curves (IRCs) were considered but eliminated because VARQ FC is similar to the IRCs in scope, intent, and effect. Montana Fish, Wildlife and Parks (Brian Marotz, personal communication) concurs with this conclusion.

6. See Response to Comment 3. The FERC 4(e) Article 60 states that the licensee of Kerr Dam in consultation with the Corps, Reclamation, Bureau of Indian Affairs, and Montana Department of Environmental Quality, shall develop and implement a drought management plan (DMP) for Flathead Lake. The DMP will address the conflicting license requirements for maintaining high summer lake levels and releasing high downstream flows during dry years. Reclamation has been participating as a cooperating agency during preparation of the DMP. Water released from Hungry Horse Dam to meet Endangered Species Act requirements should not be delayed in Flathead Lake beyond the time it has value to listed salmon downstream in the Columbia River. It may be possible that salmon releases from Hungry Horse be reshaped to partially meet the FERC 4(e) requirements. However, increasing outflows from Hungry Horse for the sole purpose of keeping Flathead Lake near full is not consistent with other ESA obligations.

**COMMENTER**

**RESPONSES**

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**MYERS, BILL**

[CONT'D]

7. It is the Corps' and Reclamation's belief, and our understanding of the US Fish and Wildlife Service's and NMFS's positions, that both salmon and resident fish species benefit from spring flow augmentation from Hungry Horse and Libby dams. Bull trout minimum flows are also provided in summer from both dams, and summer flows for salmon are managed with the intent of minimizing any negative impacts to resident fish species such as bull trout in the Flathead and Kootenai rivers.

8. The potential impacts to Flathead Lake and the regional economy in this area of Montana resulting from the proposed Federal action are analyzed and are reported in Section 4.3.7 of the EIS concerning recreation (and Section 4 of Appendix E - Detailed Recreation Assessment), and Section 4.3.14 of the EIS concerning socioeconomics (as well as Section 4 of Appendix F - Detailed Socioeconomic Assessment).

Sent: Tuesday, November 29, 2005 5:05 PM  
To: Upper Columbia EIS  
Cc: obernie@myway.com  
Subject: Draft EIS for upper Columbia Basin

From: Montana State Representative Bernie Olson, House District 10, Lakeside, MT 59922

Re: Draft EIS for the upper Columbia River Basin

I was unable to attend the meeting of November 28, 2005 in Kalispell but would like to go on record regarding the operation of Hungry Horse Dam and Kerr Dam. I am a native of Montana and have lived my entire life along the North shores of Flathead Lake. This means I was around before the dam at Hungry Horse, within twenty years of Kerr Dam's construction and have observed the results since the dams were completed. There are several areas that I would like to comment on and hope my comments will be considered in the final plan.

1. Erosion on the shores of Flathead Lake has had an enormous impact. The continuous high water level established creates erosion way beyond what would naturally occur so it is important that the lake level in Flathead come down in September at least two feet and continue down as close to low pool as possible over the winter months. That can be done as power is generated when the demand is greatest.
2. Power generation at Hungry Horse and Kerr are important. It would seem that Hungry Horse should remain at or close to full pool in the summer and fall months and then slowly draw down all winter in conjunction with Kerr Dam. That should allow for maximum generation at the right time. It would also set both reservoirs up to handle high water in the Spring and capture water for recreation.
3. Recreation needs are greatest in the summer months holding levels up and closely monitoring releases should allow both reservoirs to serve the public and local tourism based industries in a satisfactory manner. Again when the recreation industry slows down draw-down can occur and the process of erosion control and power generation can occur.

I have attended several presentations over the years regarding the drought mitigation plan in the Flathead Basin so I am familiar with most of the issues involved. It is important that Montana's interests are taken care of in any plan that is adopted.

Thank you for the chance to have input in this matter.

Sincerely,

Bernie Olson

**COMMENTER**

**RESPONSES**

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**OLSON, BERNIE**

1. Hungry Horse Dam is located upstream of Flathead Lake and regulates a portion of the inflow into the Lake, but Flathead Lake levels are ultimately controlled by Kerr Dam, which is not operated by the Bureau of Reclamation.

2. The Bureau of Reclamation operates Hungry Horse Dam in accordance with biological opinions from NOAA Fisheries and USFWS. The FCRPS Biological Opinion from NOAA Fisheries requires drafting Hungry Horse Reservoir to elevation 3540 feet by August 31. Therefore, even though Reclamation attempts to fill the reservoir in early summer, the reservoir is required to draft up to 20 feet by August 31. An effect of the 20 foot draft during July/August is that it provides power generation during the hot period of the year when power is required for air conditioning. Hungry Horse Reservoir generally draws down in the winter due to flood control and minimum flow requirements. These winter drawdowns provide power generation during the peak power demand period. The flood control drafts are designed to control the spring runoff and to limit flooding on the Flathead River.

3. Thank you for your comment. Section 4.3.7 of the EIS, under the Flathead Lake subheading, states, "Recreation users and residents of Flathead Lake are particularly sensitive to low water levels for both recreation access and aesthetic reasons." This information was addressed in the draft EIS and the analysis of the VARQ alternative explains why this alternative better meets this goal.

From: Mike & Nancy Rooney via email  
Sent: Monday, January 02, 2006 11:52 AM  
To: Upper Columbia EIS  
Subject: Comments for Draft EIS on Alternatives for Flood Control and Fish Operations at Libby Dam

Attention: Mr. Evan Lewis---

The Kootenai Valley Trout Club (KVTC), an affiliate of Montana Trout Unlimited, wishes to make the following statements as comment to the Draft EIS for Flood Control and Fish Operations at Libby Dam:

KVTC endorses the Alternative denoted as LV1-VARQ FC, which is “VARQ FC with fish flows up to powerhouse capacity (Preferred Alternative)”. Montana Fish Wildlife and Parks (MWFP), specifically Brian Marotz, are the primary authors of this flow regime and are to be thanked for their dogged perseverance in establishing a flow regime that more nearly resembles historic flows for the upper Kootenai drainage. This alternative was also endorsed by the Northwest Power and Conservation Council, and has been the subject of numerous meetings and discussions that have been adequately reported through various periodicals and newspapers in the Pacific Northwest. MWFP employees and the Northwest Power and Conservation Council members are eminently qualified to understand the issues surrounding the utilization of Kootenai River flows, and KVTC wholeheartedly supports their combined efforts toward protecting and enhancing the Kootenai.

1

KVTC recognizes that there are many interests that should be taken into account in addressing the issue of annual flows from Lake Koochanusa, but the fact remains that Libby Dam is in place and dominates the tenuous existence of local fish and wildlife habitats. It is the gorilla that we, locally, have to deal with in understanding the limitations that are involved in optimizing Kootenai River flows for the maintenance and possible enhancement of insect and fish populations resident in the mainstem Kootenai. The best we can ask for is a flow regime similar to historic flows prior to the construction of Libby Dam, but without the harmful excess flow down the Libby Dam Spillways.

Again, KVTC endorses the “Alternative LV1 – VARQ FC with fish flows up to powerhouse capacity (Preferred Alternative)”, described starting on page S-5 of the Executive Summary of the Draft EIS on Alternative FC at Libby and Hungry Horse Dams.

Thank you,

Michael S. Rooney for Kootenai Valley Trout Club

**COMMENTER**

**RESPONSES**

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**ROONEY, MIKE**

Kootenai Valley  
Trout Club

1. Comment acknowledged. Since the release of the Draft EIS, the USFWS issued a Biological Opinion on the effects of Libby Dam operations on Kootenai River white sturgeon and bull trout. The 2006 USFWS BiOp, issued on February 18, 2006, found the proposed action by the Corps and BPA would jeopardize the sturgeon and included a Reasonable and Prudent Alternative (RPA) to avoid jeopardizing the continued existence of the sturgeon. The preferred alternative identified in the Final EIS, LVB, is consistent with the USFWS 2006 Biological Opinion RPA. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 10 kcfs above the powerhouse capacity (approximately 25 kcfs) to achieve 35 kcfs from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

In addition, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. As part of this protocol, the Corps will not voluntarily exceed elevation 1764 at Bonners Ferry. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for these attributes. While release of flows up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

Marianne Roose, Lincoln County, MT, Commissioner  
Draft EIS Public Meeting, Nov 30, 2005, Eureka MT  
(transcript)

COMMISSIONER ROOSE: Good evening. I'm Marianne Roose, chairman of the board of Lincoln County Commissioners, and my comments will be very short tonight. But I'd like to begin by thanking you for bringing this meeting to Eureka. We have had very few meetings in the last few years in regards to the Libby Dam in Eureka. And when I first became a commissioner, we used to alternate the meetings between Libby and Eureka. And so that hasn't happened for some time, and we appreciate you being here tonight.

And what I wanted to share with you is that the Lincoln County Commissioners will be submitting written comments to you by the deadline.

1

We are concerned about the increased flow and the spill, the impact that it has to the residents of Lincoln County. When the flow is increased or spill takes place, there is concern about the residents that live down the river. And also comments that we do hear from our constituents are concerns about the cost of fish recovery and what it means to them. And right now, it is our understanding that those costs average about 30 cents on the dollar for people that are paying their power bill from the hydro system, and that with some of the plans in place to increase these flows, the possibility of those costs escalating is very tremendous. And as you know, we're all struggling with power costs in the northwest. And so that is an issue that our constituents share with us repeatedly is great concern over the fish costs that they're having to pay for through their power bills.

2

We recognize the value of the hydro system to the northwest and here in Eureka. Bonneville Power is a very integral part of our community. Bonneville Power is our prime supplier, our only supplier to Lincoln Electric Cooperative to Lincoln County. So any costs that escalate come back to Bonneville, come back to our local constituency.

So on behalf of the constituency of Lincoln County, we are concerned about the increase in flows and the spill, not only the impact and the effect but also the costs involved.

So we will be getting our comments to you, and thank you for being here tonight.

**COMMENTER**

**RESPONSES**

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**ROOSE, MARIANNE**

Lincoln County,  
MT, Commissioner

Draft EIS Public  
Meeting, Nov 30,  
2005, Eureka MT  
(transcript)

1. We acknowledge that higher flows are of concern for residents along the Kootenai River below Libby Dam, and have analyzed impacts on flood control and recreation, as well as agricultural groundwater seepage in Boundary County, Idaho. However, we also have a responsibility under the Endangered Species Act (ESA) to operate Libby Dam in a manner that does not jeopardize listed species, specifically, the endangered Kootenai River white sturgeon and the threatened bull trout, and their designated critical habitat. Consistent with the USFWS 2006 Biological Opinion, the preferred alternative for Libby in the final EIS is LVB. LVB allows for a range of releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. Currently, the only means available to provide up to 10 kcfs above the powerhouse capacity (approximately 25 kcfs) to achieve a total release of 35 kcfs from Libby Dam is by spill. Spill of up to 10 kcfs will increase TDG concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling up to 10 kcfs for up to 14 days in late May/early June.

The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes, and provides the Corps and BPA with options to provide for these attributes. In the near term, providing flow releases up to 35 kcfs out of Libby is the means available to achieve the desired attributes; however, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

2. The preferred alternative LVB allows for a range of releases from Libby Dam for the benefit of the sturgeon. Concerning the overall power rate differences from the alternative operations, we do not believe effects of the alternatives are discernible among the suite of factors that govern power rates. The EIS includes a statement concerning potential changes in rates in Sec. 5.3.13: "The overall change in generation varies depending on alternative combinations from a slight decrease to slight increase. These changes are very small relative to the entire system generation and will likely have no discernible impact on power rates."

# LINCOLN COUNTY

STATE OF MONTANA

RITA R. WINDOM, Commissioner  
DISTRICT NO. 1, LIBBY

JOHN C. KONZEN, Commissioner  
DISTRICT NO. 2, TROY

MARIANNE B. ROOSE, Commissioner  
DISTRICT NO. 3, EUREKA

January 3, 2006

CORAL M. CUMMINGS  
CLERK OF THE BOARD AND COUNTY RECORDER

Evan Lewis  
US Army Corps of Engineers  
Seattle District  
PO Box 3755  
Seattle, WA 98124-3755

Re: Comments on Draft EIS

Dear Mr. Lewis:

Thank you for the opportunity to comment on the Upper Columbia Alternative Flood Control and Fish Operations Columbia River Basin Draft Environmental Impact Statement. Flood control and fish operations at Libby and Hungry Horse reservoirs in western Montana are important and controversial and certainly merit a full NEPA review of the environmental and human impacts associated with these operations. The previous NEPA coverage, or SOR, of fish operations, specifically the summer drafts for flow augmentation in the lower Columbia River, lacks a detailed review of the best available science and of the local impacts associated with such operations and this updated NEPA DEIS is the appropriate process to update the review of fish and flood control operations.

As one starts to read the document it appears that Montana's long held hopes of an adequate, scientific and formal review of operations will finally be forth coming. In chapter one in the introductory statement it reads:

*" This draft environmental impact statement analyzes the impacts of alternative and benchmark flood control and fish operations at Libby Dam and Hungry Horse Dam in northwest Montana."*

1  
However as the reader progresses, the actual scope of the review is much more limited. The review is limited to only a partial review of a very limited range of alternatives.

Since 1993 when the first flow augmentation program began, Montana as state, and Lincoln County as one of the primary affected parties, has questioned the value of flow augmentation from headwaters reservoirs. At several points and over a decade of time, we have asked for reduced summer fish drafts. As good neighbors we have proposed

1

legitimate alternatives that provided for flow augmentation in ways that reduced the impacts on local interests including; basic ecosystem health and productivity, resident fish populations, river access, reservoir access, groundwater interaction, water quality, and economic development and sustainability. These included most notably the Integrated Rule Curves, the Council's 1994 Fish and Wildlife program and most recently the Council's mainstem amendments. It is our recollection that the very concept of altered flood control under a variable flow approach has some if not all of its genesis in the original IRC approach to operations.

Despite favorable scientific reviews of these proposals or the concepts contained in them by independent science bodies such as the Independent Science Group (ISG), the Independent Science Advisory Board (ISAB), and the Independent Science Review Panel (ISRP), at each turn we have been rebuffed by the federal family.

2

One common response we have heard time again as we requested relief at Libby and Hungry Horse has been: 'It is inappropriate to look at flow augmentation in an incremental fashion'. Now with the release of this DEIS, the federal government, is doing just that, looking at the incremental change of one aspect of flow augmentation. Ironically, that change has roots in alternatives originally proposed as alternative by Montana. It appears that the federal family has taken the part of our proposal that suits there interests, but still refuses the review the full impact of fish operations on Montana reservoirs and the resources and treasures they hold. This is unacceptable and should be corrected in the final EIS. A full review of the impacts and purported benefits of flow augmentation should be provided in the final EIS.

The federal government should be consistent with its past position regarding incremental review of flow augmentation, or it should formally modify it's position and allow incremental review of flow augmentation reductions such as those proposed in the Council's mainstem amendments. A reasonable and prudent approach would be to include the Council's mainstem amendments as a full alternative in this EIS. We recommend that the federal family do just that.

3

This is not the only example of a gross inconsistency in the federal family's position regarding the issue of flow augmentation. On page 368 in the summary section of the DEIS it states:

*"In general, providing additional flows during the migration period is considered to be beneficial to anadromous fish outmigration in the main stem Columbia River, and implementation of VARQ FC at Libby and Hungry Horse Dams is intended to facilitate this."*

This statement lacks any reference to actual studies and neglects the highly controversial nature of flow augmentation and many independent science reviews that

have found flow augmentation to be equivocal at best. But more importantly the federal government directly contradicted this statement when it stated on November of 23, 2005 in their declaration to Judge Redden the following:

***“ Indeed, in 2003, an independent panel of scientists concluded that: The prevailing flow-augmentation paradigm, which asserts that in-river smolt survival will be proportionally enhanced by any amount of added water, is no longer supportable. It does not agree with information now available.***

And

***“(T)he research results are currently inconclusive concerning the benefits of increasing flows as a strategy for increasing juvenile salmonid survival within the hydropower system. For spring migrating juvenile yearling salmonids the relationship between flow and their survival within a migratory season appears weak and inconsistent.” (citing Williams et al. 2005).” \****

3

Such obvious and glaring contradictions need resolved. This EIS is a logical and appropriate place to start. It has been over a decade since NEPA review has been provided to address the impacts of flow augmentation. The controversy has escalated, the SOR was weak at best in its review of 20 foot summer drafts at Libby and Hungry Horse and clearly by the governments own admission the currently available science questions the flow augmentation paradigm.

The summary statement of value of flow augmentation made in the draft EIS is not supportable. The governments own position in court refutes it. It is time for the federal family to step up to the plate, and update it's NEPA coverage of flow augmentation. We support and recommend that this EIS, regardless of the time invested in this draft effort, be updated to review the entire range of alternatives, including the council's mainstem amendments and to review the value of flow augmentation. Clearly the science and progressed and the past review is outdated and no longer sufficient.

To further illustrate the insufficiency of the historic SOR NEPA coverage referenced in the DEIS, we remind you of this statement from Page 20 of BPA ROD on the SOR EIS:

4

***“The selected strategy for SOR is based on the BOs issued in March 1995 by NMFS and the USFWS. Since environmental protection for anadromous fish and other listed species became the focus of this analysis, the selected strategy is an environmentally preferable alternative. It favors ESA-listed species as a matter of compliance with law and policy.***

***The selected strategy is focused on the protection of anadromous fish at the expense of other species, primarily resident fish and wildlife. It is possible to design additional environmentally preferable alternatives by***

*choosing different combinations of operating measures that reflect other tradeoffs among river uses and resources. For example, a second environmentally preferable alternative could be designed which would contain elements from several SOSs considered in the Final EIS."*

\* See Page 22 -

UNITED STATES DISTRICT COURT DISTRICT OF OREGON  
NATIONAL WILDLIFE FEDERATION, *et al.* Civil No. 01-640-RE  
Plaintiffs, v. NATIONAL MARINE FISHERIES  
SERVICE, *et al.* Defendants. **DEFENDANTS' RESPONSE TO  
PLAINTIFFS' MOTION FOR FURTHER INJUNCTIVE RELIEF**

4

With that in mind, we ask you to recall that the Bull Trout was first listed on **June 10, 1998**. In 1999, the U.S. Fish and Wildlife Service released its Kootenai River White Sturgeon Recovery Plan. If these BPA rod statement is true, and we believe it is, that anadromous fish protection has come at the expense of resident fish, and given that significant other ESA activity has occurred since that time for some of these "expensed" resident fish, namely the bull trout and the sturgeon, that past SOR NEPA coverage is no longer valid and needs updated. Reliance on that outdated SOR is not supportable and this EIS is a reasonable and prudent opportunity to update the scientific assessment of flow augmentation's impact on resident fish and other headwaters resources.

NEPA coverage should utilize the best available scientific information. Reliance on a decade old document does not meet that standard. We recommend a complete update on the analysis of the local and downstream affects of flow augmentation at Libby and Hungry Horse reservoirs. This should include an assessment of any and all laws and government policies to determine the legality and prudence of attempting to recovery one species at the expense of others. If species are to be "expensed" certainly the alternative should be reviewed that considers the recovery needs of Kootenai river white sturgeon of which only a few hundred remain, verse salmon which have returned in near record numbers during recent years and still support significant levels of commercial and sport harvest. The spirit, intent and legalities of the Endangered Species Act should be reviewed carefully to see if the current approach to expense resident fish is logical or even legal.

Even as a matter of fiscal prudence the NEPA review should look at this in light of the central tenant of conservation biology, protect the best, recover the rest. The central and tributary waterways in headwaters rivers such as the Kootenai and Flathead are significantly less degraded that the lower Columbia river. As such they deserve protection and reasonable levels of NEPA analysis.

5

A full review of flow augmentation should include an analysis of the hydrologic changes both in the headwaters as they supply flow augmentation and in the lower river areas that are the target reaches for flow augmentation. Such a review should look at changes in water velocity, sediment transport, turbidity, temperature and the biological responses to these parameters. Daily time-step modeling for hydrologic changes is needed for this review, but actual in-water measurements and monitoring is needed as well to provide some level of accounting to assure that modeling assumptions match real world actions. It is possible and probable that non-federal dam operators have a significant affect on the actual routing and therefore the timing of flow augmentation waters. This must be accounted for.

Significant advancements in the science base have been completed since the last NEPA coverage, including the Miller and Associates habitat and flow based GIS assessment capabilities. This allows the review habitat changes as a function of flow in the Kootenai and Flathead Rivers. The DEIS was very detailed on hydrologic changes but could use more assessment of the habitat and associated biological responses associated with these hydrological changes.

6

Inclusion of "benchmark" operations which are not considered as actual alternatives does not appear to us to meet the spirit of NEPA review. A full suite of alternatives should be reviewed and considered.

Such a review would include a robust discussion with a species by species life history evaluation of the changes.

In Chapter 5 at Section 5.1.1 the DEIS states:

7

*"Water temperature is not expected to be affected in the main stem Columbia River by any of the alternative or benchmark combinations. The Independent Scientific Advisory Board for the Northwest Power and Conservation Council, Columbia River Basin Indian Tribes, and NOAA Fisheries (ISAB 2004) determined operational changes at Hungry Horse and Libby Dams would probably not affect lower Columbia River temperatures because of the large intervening distance involved."*

We support that this formal NEPA level document now supports the long held Montana contention that water releases from Libby and HH do not affect temp in the lower river. We recognize that temperature is important in the Snake studies of juvenile smolt survival. The NOAA Flow symposium exposed that NMFS/ NOAA has extrapolated the snake results to the lower river. Thus the affects of all flow augmentation and the flow augmentation associated with VAR-Q need to be reviewed and the mechanisms thought to benefit salmon survival need to be presented and explained in the final NEPA document. As illustrated above, based on recent court statements, even the federal

7

government no longer supports the summary conclusion in the DEIS regarding the merits of flow augmentation.

As commissioners in Lincoln county we are intrigued by the following quote from DEIS section 5.7 Environmental Justice:

8

*"Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group of people should bear a disproportionate share of negative impacts from an environmental action."*

From our perspective it is clear that the people of Lincoln County are not being afforded the protections of the executive order noted above. We request that the final EIS contain a detailed examination of the current poverty and employment rates here in Lincoln County as well as the magnitude of the environmental and social impacts here relative to the benefits provided by the operations of Libby dam. (See table 4-13 )

Statements on page 95 in chapter 4 acknowledge that fish flows reduce the pool elevation during the summer recreation season. We bring to your attention that we previously discussed that anadromous fish were being recovered at the expense of resident fish. This operation increases power costs for local residents. It appears we incur only adverse affects from the flow augmentation operation and none of the purported benefits.

#### **POWER COSTS**

9

Increasing power costs is of great concern to us. It is our understanding that the Bonneville Power Administration did not do the power analysis. We encourage you to incorporate the expertise of the BPA in compiling the final estimates of power costs.

We have heard statistics that suggest that currently nearly 30 cents of every rate payers dollar is now goes towards fish and wildlife costs. It appears that this proposal will increase fish costs even more and that is of great concern to us.

Power markets have changed dramatically since the inception of this DEIS. Increased fuel prices have affected the market dramatically. Legal actions have directed that more spill on the lower river occur during the summer months. These factors must be accounted for in the power assessment.

## INCREASED DISCHARGE

We are very concerned about the LV-2 operation that proposes to increase the discharge capacity at Libby dam by 10 kcfs. It seems odd and suspicious to us that an operation that is known to cause violations of water quality laws and has no explained origin in public scoping is given more credence in the DEIS than a legitimate alternative such as the Council's Mainstem amendment proposal. The origin of this proposed increase in discharge capacity should be fully explained.

10

It is illogical to include analysis of an alternative that currently lacks a physical means for implementation that does not violate state laws. There appears to be little or no empirically based, scientifically peer reviewed data or reports referenced that justify this operation. It appears to be little more than a potential experiment to examine the effects of flow on sturgeon. Once again the federal approach appears to be an approach that "expenses" one fish species or part of the ecosystem for the sake of another. This Peter to pay Paul approach is unsustainable and not in the spirit of the ESA. It should be removed from this DEIS and if need be considered in its own separate EIS once the water quality issues and a justification are fully baked.

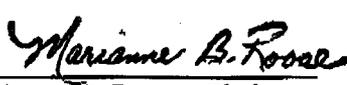
It will have power costs, structural maintenance costs, and local ecosystem impacts that need a full and comprehensive review. We will continue to pressure our state agency officials to vigorously enforce our state's water quality laws.

11

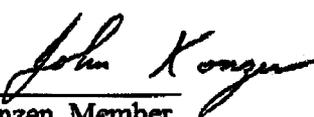
Operations should be reviewed across the entire sturgeon life history. It appears to us that currently, the critical early life history or the first 3 to 10 weeks of the young sturgeon's life are not being fully considered in this or any other NEPA document. An approach such as the Council's mainstem amendments appear to be an alternative better suited to meeting the early life history needs of the sturgeon and should be included in the final EIS.

As an elected body representing a population that is highly impacted by the operations of the Libby Dam, we hope that you will give our comments the strongest consideration.

Sincerely,

  
Marianne B. Roose, Chairman

  
Rita R. Windom, Member

  
John C. Konzen, Member

**COMMENTER**

**RESPONSES**

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**ROOSE, MARIANNE,  
RITA WINDOM AND  
JOHN KONZEN**  
Lincoln County  
Commissioners

1. VARQ FC is similar to IRCs, and has been accepted and endorsed by the State of Montana as meeting the objectives of the IRCs. The VARQ flood control procedure was formulated to benefit fish as well as recreation and other local interests. It helps better assure refill of Lake Kootenai while we provide for flow augmentation to benefit resident fish, including sturgeon and bull trout. The Corps and Reclamation recognize that there is a debate about the biological benefit of flow augmentation to salmon and steelhead. We are responsible for taking into account recommendations in the Northwest Power and Conservation Council's Mainstem Amendments, including those concerning summer flow augmentation from Libby and Hungry Horse projects. These recommended operations are at variance with the operations contained in the 2004 Updated Proposed Action (UPA) and confirmed in the 2004 NOAA Fisheries Biological Opinion (2004 BiOp). The 2004 UPA/BiOp operations were adopted in the Corps and Reclamation's respective Records of Decision to avoid the likelihood of jeopardizing the continued existence of listed salmon and steelhead species. The operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is subject to the discussions occurring in the collaborative remand process ordered by Judge Redden in the U.S. District Court of Oregon. The Corps and Reclamation believe the discussion of alternative operations, such as those recommended in the Mainstem Amendments, and the biological merit for listed salmon and steelhead species associated with these operations is appropriate for consideration in the remand forum.

However, for your awareness, implementation of the Mainstem Amendment recommendations for Libby and Hungry Horse is within our normal range of operations and the range of impacts analyzed in this EIS and other NEPA documents; therefore, additional NEPA analysis would not be necessary if this change is adopted later based upon those discussions.

2. Comment noted. The Corps and Reclamation do not agree with the commenters' referenced incremental review of flow augmentation in this EIS. The analysis in this EIS evaluates local and system impacts associated with proposed operations at Libby and Hungry Horse dams to benefit both resident fish species and salmon and steelhead downstream. Please also refer to Response to Comment 1.

3. As noted above in Response to Comment 1, we recognize that there are many issues concerning the biological benefit of flow augmentation, particularly in the summer; however, in the Endangered Species Act (ESA) consultations on listed anadromous species, NOAA Fisheries has continued to recommend operating to meet flow objectives. These flow objectives were established by NOAA, and supported by other salmon managers in the region for smolt outmigration. We also note the concerns of the State of Montana concerning effects of summer flow augmentation on Montana resident fish and the organisms on which they feed and have documented the effects on these resources in our analysis of the various alternatives in the EIS.

Finally, it is not within the scope of this EIS to resolve the scientific debate concerning flow augmentation for salmon and steelhead in the lower Columbia. Again, as discussed in our Response to Comment 1, the Corps and Reclamation believe the discussion of alternative operations, such as those recommended in the Mainstem Amendments, and the biological merit for listed salmon and steelhead species is best addressed in the collaborative remand forum.

4. As discussed in documents relied upon in ESA consultations, the Corps, the U.S. Fish and Wildlife Service, and NMFS, assume benefits to both salmon and sturgeon with spring flow augmentation from Libby Dam. With respect to summer flows, the EIS analyzes the effects of the salmon flows on resident fish in the Kootenai River (see Section 3.3.3.), and discloses potential impacts as required under NEPA. This EIS incorporates the SOR EIS by reference and incorporates new information concerning the effects on resident fish and adequately

**COMMENTER**

**RESPONSES**

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**ROOSE, MARIANNE,  
RITA WINDOM AND  
JOHN KONZEN**

[CONT'D]

evaluates and discloses effects of the alternatives considered. The preferred alternative combination identified in the Final EIS, LVB+HV, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative on the effects of the operation of Libby Dam on the Kootenai River white sturgeon. LVB addresses the ability to release a range of flows up to 35 kcfs from Libby Dam, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment.

The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and provides flexibility for the Corps and BPA to investigate and implement alternative mechanisms to achieve these attributes. The Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

5. Using the best available information, the EIS analyzes effects of flow operations on the various parameters affecting aquatic life, including temperature, velocity and sediment transport. The EIS is being modified to indicate that we have little evidence to indicate that the alternatives have any effect on turbidity. Monitoring of biological responses to habitat variables is being undertaken in various studies by the Kootenai Tribe of Idaho, the Idaho Department of Fish and Game, and Montana Fish, Wildlife and Parks.

6. The range of alternatives analyzed in the EIS is consistent with the purpose and need stated in the EIS. As explained in the EIS, the benchmarks, which do not meet the purpose and need of the EIS, were included to provide a mechanism for comparing the incremental differences in effects associated with the various alternatives.

7. Comment noted. As stated above in Response to Comment 1, the Corps and Reclamation believe the discussion of alternative operations, such as those recommended in the Mainstem Amendments, and the biological merit for listed salmon and steelhead species associated with these recommendations is appropriate for consideration in the remand forum.

8. Comment noted. The Executive Order pertains to addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. We believe the EIS does address in appropriate detail the adverse impacts to the human health and environment in the local and regional areas. Chapters 3, 4 and 5 contain sections on socioeconomics and various affected resources. The preferred alternative for Libby Dam, LVB, would result in spill up to 10,000 cfs in some years. Language has been added to Sec. 3.9, Environmental Justice: "Impacts to human health are not anticipated by the preferred alternative. Impacts to the local and regional area are further discussed in Chapters 3-5. Because of impacts in some years to water quality in the Kootenai River as a result of spilling up to 10,000 cfs, the recreational economy of Lincoln County, Montana, may be affected by the preferred alternative, LVB, as well as LSB.

Table 3-8 contains information for Lincoln County analogous to that in Table 4-13. Table 3-22 and associated text discusses river-related recreation effects of the alternatives. Section 3.3.12, Employment and Income Effects of Recreation Impacts, in the Libby Dam to Kootenay

**COMMENTER**

**RESPONSES**

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**ROOSE, MARIANNE,  
RITA WINDOM AND  
JOHN KONZEN**

[CONT'D]

Lake near Creston BC reach includes new text as follows: "Adverse impacts to fishery resources from more frequent spill under alternatives LSB and LVB would likely adversely affect employment and income for the local fishing guide industry in the vicinity of Libby, Montana. Based on employment by industry (Table 3-10), the 8.7% of Lincoln County jobs in the recreation/entertainment and accommodation/restaurant industries could be adversely affected by diminished fishing opportunities. Retail trades and real estate may also be impacted. The degree of these adverse effects may be significant in the Libby/Troy area of Montana."

9. The analysis of hydropower impacts was coordinated with BPA. Management of impacts to natural resources from the Northwest's hydropower system has become of greater concern over the past several years, and is addressed through the BPA's Fish and Wildlife Program, in conjunction with the Northwest Power and Conservation Council (NPCC). Section 5.3.13 now states, under Employment and Income: "The overall change in generation varies depending on alternative combinations from a slight decrease to slight increase. These changes are very small relative to the entire system generation and will likely have no discernible impact on power rates."

10. As discussed in Response to Comment 4, the preferred alternative identified in the Final EIS, LVB, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative. LVB allows for a range of releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation.

The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and allows the Corps and BPA the flexibility to select the means to provide for the attributes. While flow releases up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

11. VARQ and fish flows analyzed in this EIS are targeted at benefiting several species, including sturgeon. The 2006 USFWS Biological Opinion identifies an approach to evaluate mechanisms to provide habitat attributes that sturgeon appear to need during the early life history period. The preferred alternative in the Final EIS, LVB, provides for one mechanism, i.e. a range of flows, to achieve some of the habitat attributes necessary for successful sturgeon spawning and recruitment.

11/28/05

Evan Lewis  
U.S. Army Corps of Engineers  
P.O. BOX 3755  
Seattle, Washington 98124-3755

Mr Lewis:

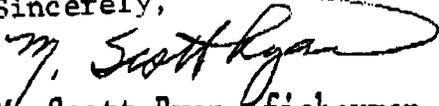
I am 100% opposed to your newest DFIS for flows from the Libby,MT dam.

1 I seem to recall the state of Montana has proven that flows over the spillway at the Libby Dam have a devastating effect on all fish. So where is your common sense in this equation? Kill upstream fish in an effort to save downstream fish that are probably doomed anyhow!

2 Trust of our Federal government is at an all time low and then this? I notice that neither of the effected communities have the opportunity to an open public meeting for comment. How come? Do you feel threatened by these localities and the fact that you'll have to confront real people?

3 Please listen to the State of Montana Fisheries Biologists and apply their equation for a year before you move any further forward.

Sincerely,

  
M. Scott Ryan, fisherman

**COMMENTER**

**RESPONSES**

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**RYAN, M. SCOTT**

1. Comment noted. The preferred alternative combination identified in the Final EIS, LVB+HV, is consistent with the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative (RPA). LVB provides for releases from Libby Dam up to 35 kcfs, if appropriate water conditions exist, to attain a normative hydrograph. The objective is to achieve the habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

Also, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeons' biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes and provides the Corps and BPA with options to provide for these attributes. In the near-term, release of flows up to 35 kcfs out of Libby is the available means to achieve the desired attributes, but the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.

2. To engage Kootenai River stakeholders, public meetings on the Draft EIS were held at Eureka, Montana; Bonners Ferry, Idaho; and Nelson, British Columbia. The meetings in Bonners Ferry and Eureka were publicized in Libby media outlets and notices were sent to over 2300 addressees (including to over 280 addressees in Montana) on the project mailing list. Although the EIS process will soon come to a close, the Corps and Reclamation will continue to work to engage interested stakeholders in the region concerning operations of Libby and Hungry Horse dams. The Corps plans to hold public meetings in the April – May 2006 timeframe.

3. Comment noted. The Corps is working with the State of Montana and their fisheries biologists as we develop the Implementation Protocol referred to above in Response to Comment 1. We value their expertise and input and consider all comments received in response to this Draft EIS in developing our Final EIS and eventual Record of Decision (ROD) for the proposed action.

Sent: Thursday, November 10, 2005 2:00 PM

To: Upper Columbia EIS

Subject: public comment on federal register of 11/10/05 vol 70 #217 pg 68409

flood control and fish operations at hungry horse and other dams

1

judging by the levee built in the new orleans area by the army corps of engineers, i would urge all to exercise extreme caution in engaging army corps of engineers to build anything. the investigation of what went wrong down there is not complete as yet, but the usace has been implicated as doing work that is inadequate and negligent so far by the engineers that are examining the failure of the levee.

2

i think it is clear that any dam has to make sure water that is being kept for human use, also allows the birds and wildlife that share our earth to be able to get some water for themselves too.

b. sachau

15 elm st

florhampark nj 07932

Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses

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**COMMENTER**

**RESPONSES**

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**SACHAU, B.**

1. Commenter is referring to activities outside the scope of this EIS.
2. Comment noted. Thank you.

OFFICE OF THE GOVERNOR  
STATE OF MONTANA

BRIAN SCHWEITZER  
GOVERNOR



JOHN BOHLINGER  
LT. GOVERNOR

December 21, 2005

Jeff Laufle *JA*  
Project Manager  
U.S. Army Corps of Engineers, Seattle District  
P.O. Box 3755  
Seattle, Washington 98124-3755

*Rec'd 29 Dec 2005*

Lori Postlethwait  
Project Manager  
U.S. Bureau of Reclamation  
1150 No. Curtis, Suite 100  
Boise, Idaho 83706

Dear Mr. Laufle and Ms. Postlethwait:

Please accept this letter as formal comment related to the Draft Environmental Impact Statement (DEIS) for Upper Columbia Alternative Flood Control and Fish Operations prepared by the U.S. Army Corps of Engineers (Corps) and U.S. Bureau of Reclamation (Bureau) and released in November of this year. Given the importance of operations at Libby and Hungry Horse to the State of Montana I welcome the opportunity to comment on this critical document.

I will limit my comments to a brief overview as I know that both Bruce Measure and Rhonda Whiting from the Northwest Power and Conservation Council (Council) and Brian Marotz from the Montana Department of Fish, Wildlife, and Parks, and potentially the Departments of Environmental Quality and Natural Resources and Conservation, will be submitting their comments as well. I ask that you incorporate their comments by this reference with my own, and strongly urge you to consider their submitted comments when compiling your final environmental impact statement. Their combined backgrounds and knowledge of the impacts to Montana of your proposed operations at Libby and Hungry Horse is extensive.

While Montana is supportive of the permanent implementation of VARQ, it is still apparent that the federal agencies continue to consider "flow augmentation" for salmon a given, and this is apparent in your document. I would ask the Corps, Bureau, and other pertinent federal agencies to evaluate the recent science, including the independent scientific report from the Council's symposium on flow held late last year. My read on

1

the science is that the effects of flow augmentation from Libby and Hungry Horse on endangered salmon in the lower Columbia is immeasurable while operations at Libby and Hungry Horse Dams are often harmful to resident fish in the reservoirs above and rivers below those facilities.

1

We all want to protect and restore salmon and are willing to help in whatever way we can. We in Montana just do not want it done in a manner that harms resident fish and wildlife in our State. That is why I ask, acknowledging that the scope of the DEIS deals largely with VARQ combined with fish flows, that you further consider and help the State of Montana implement the summer operations called for in the Council's Mainstem Amendments. As you are aware, the summer operations call for stabilizing flows out of Libby and Hungry Horse, extending those flows into September, and limiting the draft of Libby and Hungry Horse to 10 feet. I believe the alternatives for fish flows called for in the DEIS assume a 20 foot summer draft. In this regard the alternatives could impact the implementation of the Council's Mainstem Amendments.

2

I note that the preferred alternative in the DEIS calls for implementing VARQ at both Libby and Hungry Horse without exceeding turbine capacity. Intentionally exceeding turbine capacity would quickly exceed Montana's water quality standards for Total Dissolved Gas (TDG). The State of Montana would have to seriously look at any proposal that exceeded turbine capacity before we could support such an action because of the impacts TDG has on the aquatic environment.

3

Finally, the agencies should consider the impacts to ratepayers and the overall economy in the region and in Montana resulting from any operations. We never want to pit power versus fish, but the reality of the situation is we need to do what is right for fish but we also need to be careful to protect the ratepayers. I emphasize this as Montanan's are suffering through a very cold winter with energy costs higher than they have ever seen.

Thank you for the opportunity to comment on this matter. If you have any questions on this matter, please contact one of my representatives on the Northwest Power and Conservation Council, Bruce Measure and Rhonda Whiting.

Sincerely,

  
Brian Schweitzer  
Governor

**COMMENTER**

**RESPONSES**

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**SCHWEITZER, BRIAN**

Governor of  
Montana

1. The Corps and Reclamation recognize that there are issues concerning the biological benefit to salmon and steelhead from flow augmentation provided by Libby and Hungry Horse dams. As Federal agencies responsible for operating hydroelectric facilities, we must take into account the Northwest Power and Conservation Council's Mainstem Amendment recommendations for summer flow augmentation from Libby and Hungry Horse projects. However, these recommended operations differ from the operations contained in the 2004 Updated Proposed Action (UPA) and confirmed in the 2004 NOAA Fisheries Biological Opinion (2004 BiOp) as meeting the requirements of the Endangered Species Act. The 2004 UPA/BiOp operations were adopted in the Corps and Reclamation's respective Records of Decision to implement the 2004 UPA/BiOp to avoid the likelihood of jeopardizing the continued existence of listed salmon and steelhead species. The operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden in the U.S. District Court of Oregon. The Corps and Reclamation believe the discussion of alternative operations, such as those you reference in your letter, and the associated biological merit for listed salmon and steelhead species, is best conducted in the remand forum.

Implementation of the Mainstem Amendment recommendations for Libby and Hungry Horse dams are within the normal range of operations and within the range of impacts previously analyzed in this EIS or other NEPA documents; therefore, no further NEPA analysis would be needed if these recommendations are adopted at a later date.

2. The Federal agencies recognize and share Montana's concerns about potential total dissolved gas (TDG) impacts. Because of the storage capacity limits of Libby and Hungry Horse dams, there is a risk of involuntary spill with both VARQ FC and Standard FC. However, through real-time management, the Corps and Reclamation are committed to minimizing this risk to the extent possible.

With the issuance of the USFWS 2006 Biological Opinion Reasonable and Prudent Alternative, the Corps has identified a new preferred alternative in the Final EIS, LVB+HV. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase TDG concentrations above the State of Montana's water quality standard of 110% saturation.

The Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. This collaboratively developed Implementation Protocol is intended to assist the Federal agencies' discussions with the State of Montana concerning the TDG effects associated with spilling 10 kcfs. We recognize the efforts to address the critically endangered condition of the sturgeon involving Libby Dam operations raise substantial concerns for the State of Montana, in particular the exceedance of the TDG water quality standard and the effects on the aquatic environment. The Corps and the other Federal agencies are committed to working with the State of Montana to address these challenging issues.

While flow releases up to 35 kcfs out of Libby is the method currently available to achieve the desired habitat attributes for the listed sturgeon in the near term, the 2006 BiOp RPA recognizes that there are other ways to achieve these attributes. The RPA provides the Corps and BPA with the flexibility to investigate and implement other means of achieving the necessary habitat attributes. The Corps and BPA are pursuing habitat actions, which are intended to reduce the need for such releases from Libby Dam in the future.

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**COMMENTER**

**RESPONSES**

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**SCHWEITZER, BRIAN**

[CONT'D]

With respect to the TDG effects associated with spill at Hungry Horse Dam, data from the years 1929-2002 show that spill as a percent of total flow exceeds 21%, one percent of the time under HV and not at all under HS. However, in practice Reclamation will try to limit spill as a percent of total flow to 21% to keep TDG levels below the State of Montana criterion. The increase from 15% to 21% is to account for the 380 MW power restriction at Hungry Horse Dam.

3. Comment noted. Power rates are the result of a complex set of factors which vary seasonally, and cannot be predicted in direct connection with any of the alternatives evaluated in this EIS. Sec. 5.3.13 now states, under Employment and Income: "The overall change in generation varies depending on alternative combinations from a slight decrease to slight increase. These changes are very small relative to the entire system generation and will likely have no discernible impact on power rates."

December 27, 2005

Mr. Evan R. Lewis  
U.S. Army Corps of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755

Re: Comments on November 2005 Draft Environmental Impact Statement (DEIS) for the Upper Columbia Alternative Flood Control and Fish Operations

Dear Mr. Lewis:

This letter conveys the comments of Anheuser-Busch, Inc., on the Draft Environmental Impact Statement on Upper Columbia Alternative Flood Control and Fish Operations (DEIS) prepared by the Seattle District of the Army Corps of Engineers. The DEIS presents a description of the effects of making permanent a change in the flood control operating rule at Libby Dam that was implemented on an interim basis in 2002. Anheuser-Busch is the parent company of Busch Agricultural Resources, Inc., the owner of Elk Mountain Farms. Elk Mountain Farms lies adjacent to the Kootenai River downstream of Libby Dam in Boundary County, Idaho.

1 { Libby Dam was authorized in 1950 primarily to provide hydropower and flood protection. When the project was constructed in 1974 it brought much-needed relief from chronic high water to downstream communities in the Kootenai Valley, particularly to the low-lying areas of Bonners Ferry and the Kootenai Flats. Project operation also resulted in lower early summer water levels in Kootenay Lake and often incidentally provided enhanced flood protection as a result of winter drawdown for hydropower generation.

Anheuser-Busch relied on the flood protection provided by Libby Dam and Lake Koocanusa when it established Elk Mountain Farms in 1987. Elk Mountain Farms provides a key source of hops for our breweries across the nation and is one of the larger employers in Boundary County.

2 { In 1995, the Corps began annual flow augmentation releases from Libby Dam on the theory that this would benefit endangered Kootenai River sturgeon and Columbia River salmon and steelhead. These releases have continued since then. The DEIS states that the impacts of flow augmentation were assessed in the 1995 Environmental Impact Statement for the Columbia River System Operation Review, but acknowledges that the effects of flow augmentation on agriculture in the Kootenai Valley were not identified as

2 { an issue and were not evaluated. A brief review of the 1995 EIS suggests there were no public meetings held in Bonners Ferry. The decision to proceed with flow augmentation was made without consideration of agricultural impacts in the Kootenai Valley.

3 { The DEIS now treats flow augmentation as a “given” (it is present in the No Action alternative) and evaluates the permanent adoption of the VARQ flood control operating rule. VARQ permits Lake Koocanusa to be held at higher levels in the winter and spring, under certain conditions, to help assure reservoir refill while making flow augmentation releases.

4 { Flood protection relied upon by downstream communities and by Elk Mountain Farms has been and will be eroded by these actions. Despite assurances in the DEIS that the risk of exceeding flood stage at Bonners Ferry is not increased by VARQ, the fact is that the VARQ operating rule reduces the space maintained in Lake Koocanusa for flood protection. Historical inflow forecasts have tended to underestimate runoff in above average years. Without offsetting improvements in forecast accuracy in such years, VARQ can only increase the flood risk to the community.

5 { The DEIS also identifies substantial agricultural impacts from flow augmentation and VARQ via ground water seepage associated with higher river and lake levels. The combined effects of flow augmentation and VARQ on Elk Mountain Farms alone are on the order of \$800,000 per year. Furthermore, Anheuser-Busch believes that these estimates are low because they do not appear to consider the multi-year loss of production associated with replacement of hop plants destroyed by high ground water levels.

6 { Anheuser-Busch has an established record of support for the environment and is committed to doing its part to help recover endangered species. However, the ten-year experiment in Kootenai River flow augmentation has not demonstrated success in the form of improved sturgeon recruitment and the DEIS acknowledges a number of other conditions, such as food sources and water quality, that may be limiting factors in the recovery of the fishes. We believe that this should cause a redirection of thinking about the recovery program, with greater emphasis on non-flow measures.

7 { If it is not possible to avoid flow augmentation and the diminished flood protections associated with VARQ, Anheuser-Busch believes the Corps and other action agencies have an obligation to the local community to help mitigate their adverse effects. This mitigation could take many forms.

7 { First, and foremost from the Anheuser-Busch perspective, the flow augmentation operation should be fine-tuned so as to reduce its most damaging characteristic of sustained high river levels. A pulse of high flow for a short duration is far less problematic than sustained high water at lesser flow rates. The DEIS does not adequately describe the durations of annual high flow events stemming from flow augmentation. In addition, because hop growth is more sensitive to high water conditions in early summer than in the late spring, the earlier flow augmentation releases are made the better.

8

Second, a substantial part of the impact on agriculture on the Kootenai Flats stems from water levels in Kootenay Lake downstream. We believe that efforts should be made, jointly with Canadian interests, to operate the lake at lower levels during flow augmentation periods, such as the levels attained before flow augmentation began. In addition to helping communities in the Kootenai Valley, this would address growing concerns about the impact of high lake levels on residential and commercial land uses around the lake in British Columbia.

9

Third, existing levees and drainage systems in the Valley should be improved wherever feasible. Anheuser-Busch has invested over \$650 thousand in its own drainage facilities since the flow augmentation program began in 1995, with an additional \$200 thousand spent on levee maintenance. Other agricultural producers in the Valley may not have been able to afford such improvements. And the Corps has acknowledged, in its ongoing flood level assessment study, that levee failures are likely to be the primary cause of most flooding problems. We believe that some form of assistance should be provided to local entities to improve their drainage systems and levees to offset the adverse effects of flow augmentation and VARQ.

10

Finally, we believe that the Corps and other action agencies need to refocus the sturgeon recovery effort on non-flow measures. The Kootenai Tribe of Idaho has had great success in hatching sturgeon and releasing juvenile fish to the river, and has done so with a program that protects the genetic diversity of the wild population. Given the current populations of adult sturgeon, the hatchery is probably critical to survival of the species. The hatchery program should certainly be maintained if not expanded.

Adequacy of spawning substrate has been cited as one of the most important habitat characteristics for sturgeon recovery. Perhaps cued by hydraulic conditions in the river, the fish appear now to spawn in an area that likely has never had good substrate. We believe it essential that the Corps proceed with its pilot project to provide artificial spawning substrate in the Shorty's Island section of the river.

The DEIS also identifies water quality (both temperature and nutrient load), food sources in Kootenay Lake, and adequacy of rearing (wetland) habitat as potentially limiting factors in sturgeon recovery. We believe all of these issues need greater attention. Flow augmentation has not demonstrated success, and it is short-sighted to continue to rely on it for recovery of this species.

11

Anheuser-Busch remains committed to the recovery of the endangered fish of the Kootenai River and will do its part to support recovery efforts. However, we believe that without mitigating or attenuating measures, simply continuing the flow augmentation program under the diminished flood protection of VARQ unfairly burdens the agricultural producers on the Kootenai Flats and the residents of Boundary County.

For more than a century, Anheuser-Busch has operated with care and concern for the world's environment and for our precious natural resources.

We do this because it's the right thing to do. Our efforts to protect the environment and to demonstrate social responsibility have also enhanced our financial performance and growth opportunities.

From internal practices to ensure environmental excellence, to the support of conservation, wildlife and environmental organizations, Anheuser-Busch's philosophy is one employees, shareholders and consumers alike can appreciate: "Every choice we make regarding the earth, air, and water around us is made with the objective of preserving them for generations to come."

Thank you for providing this opportunity to comment on the DEIS.

Sincerely,

Brad Studer  
General Manager  
Elk Mountain Farms, Inc.  
HCR60, Box 264  
Bonners Ferry, ID 83805  
Phone (208) 267-8569  
Fax (208) 267-3451

**COMMENTER**

**RESPONSES**

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**STUDER, BRAD**

Elk Mountain Farms, Inc.

1. Comment noted. Congress authorized the construction, operation, and maintenance of Libby Dam, in part to provide for system and local flood control. The Corps is responsible for taking into account a variety of statutes, treaties, executive orders, etc., in its operation of Libby Dam. These include, but are not limited to, the Columbia River Treaty, the International Joint Commission (IJC) 1938 Order on Kootenay Lake, the Endangered Species Act and relevant biological opinions, the Pacific Northwest Electric Power Planning and Conservation Act, and Libby Dam's enabling legislation. The authorized project uses include hydropower, flood control, recreation, fish and wildlife, navigation and other benefits.
2. Comment noted. The 1995 System Operation Review (SOR) EIS considered certain fish flow augmentation operations at Libby Dam; however, scoping and public comments did not identify seepage as a potential issue to be addressed.
3. The no-action alternative includes fish flows because we have implemented them in response to biological opinions from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service since 1995. The Final EIS incorporates the 1995 System Operation Review EIS and provides additional and updated information on the effects of fish flow augmentation. To provide an adequate analysis of impacts, the Corps included "benchmarks," which are operations without fish flows.
4. Under both VARQ FC and Standard FC, the risk of exceeding the existing 1764-foot flood stage at Bonners Ferry is equivalent. Although the flood control space provided by VARQ FC is generally less than under Standard FC, the rules for refilling Libby under the two procedures are also different, and simulation modeling shows that VARQ FC operations maintain existing levels of flood control. We will continue to seek and adopt improved forecasting methods to minimize flood risks.
5. Comment noted. The Final EIS takes into account the impacts of the different alternatives on agricultural production in the region, including information provided by Elk Mountain Farms. Costs related to replacement of hop plants that were not considered in the Draft EIS, have been added to Section 3.3.12 of the Final EIS.
6. The Corps agrees that other factors are important to the recovery of sturgeon. The Corps and BPA proposed a suite of actions, including habitat improvements, Libby Dam operations, and conservation aquaculture, in the ESA consultation with the USFWS. The 2006 USFWS BiOp RPA calls for the Corps and BPA to provide the habitat attributes—depth, velocity, temperature and substrate—to meet ESA requirements. These attributes are attainable through a variety of means. The Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future. However, since flow measures are still considered an important component of the suite of recovery actions for sturgeon, the Corps is currently working with the USFWS, States of Montana and Idaho, the Kootenai Tribe of Idaho and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol for flows above powerhouse capacity from Libby Dam. This Protocol will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of the preferred alternative, LVB. As part of this protocol, the Corps will not voluntarily exceed elevation 1764 at Bonners Ferry.
7. The 2006 RPA as implemented through the Implementation Protocol described above in Response to Comment 6, is designed to test a variety of flow treatments with the objective of shaping flows to provide the habitat attributes noted above for successful sturgeon spawning and recruitment. The concept is to provide for a more normalized hydrograph with peak flows, using available water, for up to two weeks. The intent is to assess and verify actions that meet the sturgeon's requirements with the least impact to other resources.
8. The USFWS 2006 BiOp RPA has indicated that holding the elevation of Kootenay Lake at a higher level during the sturgeon spawning period may assist in attaining the desired depths

**COMMENTER**

**RESPONSES**

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**STUDER, BRAD**

[CONT'D]

the USFWS has identified as necessary for successful sturgeon spawning and recruitment. Management of Kootenay Lake levels requires coordination with Canada and a determination that a new operation would be consistent with the International Joint Commission Order of 1938 concerning Kootenay Lake levels. The Corps and BPA are evaluating whether this recommended change in operations would achieve the desired result prior to engaging in discussions with Canada.

9. The Corps does not currently have authority to provide for local levee and drainage improvements along the Kootenai River.

10. See Response to Comment 6. The Corps and BPA plan on continuing and expanding support for the Kootenai Tribe of Idaho's fish hatchery, proceeding with the pilot project for improving substrate conditions at Shorty's Island, providing increased nutrients in the Kootenai River and Kootenay Lake, and exploring the best available scientific information as to which factors may lead to recovery of the sturgeon, including, but not limited to, flow augmentation and other habitat attributes.

11. We appreciate and share your commitment to recovery of the endangered Kootenai River white sturgeon. We are working hard to make decisions that meet our ESA responsibilities for the sturgeon and minimize impacts to other resources and the communities downstream.



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
PORTLAND OFFICE  
1201 NE Lloyd Boulevard, Suite 1100  
PORTLAND, OREGON 97232-1274

F/NWR5

December 22, 2005

US Army Corps of Engineers  
Seattle District  
Attn: Evan Lewis, PM-PL-ER  
PO Box 3755  
Seattle, WA 98124-3755

US Bureau of Reclamation  
Attn: Dan Lechefskey  
1150 N Curtis Rd, Suite 100  
Boise, ID 87306-1234

RE: Comments on Upper Columbia Alternative Flood Control and Fish Operations Draft  
Environmental Impact Statement (DEIS)

Dear Mr. Lewis and Mr. Lechefskey:

Thank you for giving the National Marine Fisheries Service (NMFS) the opportunity to comment on your DEIS of November, 4, 2005. As clearly stated in the DEIS, the preferred alternatives (LV1 and HV) are operations that NMFS has long supported. Identified in 2000 as part of a Reasonable and Prudent Alternative to the proposed operation of the Federal Columbia River Power System (FCRPS), subsequently implemented on an interim basis, and included in the 2004 proposed action for the remanded consultation on the FCRPS, these operations would result in substantial benefits to spring and summer flows during lower than average water years to the benefit of outmigrating juvenile salmon and steelhead in the Columbia River. We believe the DEIS fully evaluates the consequences of the proposed action and the several alternatives considered.

### General Comments

1. NMFS fully supports LV1, the preferred alternative for operation of Libby Dam. However, by increasing safe project discharge by up to 10,000 cfs, the LV2 alternative would offer a wider array of water delivery strategies which could benefit all uses of the Kootenai River. As depicted in Appendix N, increased powerhouse capacity would also reduce the concern for "fill and spill" conditions during reservoir refill, potentially allowing more aggressive reservoir refill operations which would improve refill probability and spring flows in some years. Therefore, we recommend that the USACOE adopt LV1 now and complete analysis of the LV2 alternative in the future.



2. NMFS fully supports the HV alternative for operation of Hungry Horse Dam. We recommend adoption of this alternative for future operation of Hungry Horse Dam.

### Specific Comments

3 1.4.3, Page 9, first paragraph. This sentence presents the objective of the Columbia River system flood control differently than that stated under "Flood Protection Objectives" in the Columbia River Treaty Flood Control Operation Plan (USACE 1999 at IV). The difference is that the Treaty plan specifies that floods should be reduced to "non-damaging levels," while the DEIS states that the objective is to "minimize flooding at all potential flood-prone areas." Because minor nuisance flooding in some flood prone areas has an array of benefits to aquatic resources, (e.g., side-channel connectivity, channel maintenance, gravel rejuvenation and replenishment, and others) the implication of the DEIS causes us some concern and could create unrealistic expectations among riverfront property owners. We recommend that the DEIS language be modified to more accurately depict the flood control objective of the projects as presented in the Treaty plan or authorizing legislation.

This concludes our comments on the DEIS. If you have any questions regarding these comments or desire clarification, please contact Jim Ruff of my staff at 503-230-5437. Please provide us a copy of the final EIS when it becomes available and any subsequent decision documents.

Sincerely,



Bruce K. Suzumoto  
Assistant Regional Administrator  
Hydropower Division

### Reference

U.S. Army Corps of Engineers (USACE). 1999. Columbia River Treaty Flood Control Operating Plan. USACE, Northwestern Division, North Pacific Region. October 1999.

cc: Susan Martin, USFWS Spokane, WA  
Bob Hallock, USFWS Spokane, WA

**COMMENTER**

**RESPONSES**

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**SUZUMOTO, BRUCE**

National Marine  
Fisheries Service

1. Comment noted. The preferred alternative for operation of Libby Dam in the final EIS, LVB, provides for testing different flow treatments as specified in the 2006 USFWS Biological Opinion and Reasonable and Prudent Alternative, which includes testing flows up to 35,000 cfs.

2. Comment noted.

3. To reconcile any apparent inconsistencies between the EIS and the most recent Columbia River Treaty Flood Control Operating Plan, the subject text of the EIS has been revised as follows:

*"The basic objective of Columbia River system flood control operations is to regulate the total reservoir system to, when possible, minimize flood damages at all areas in Canada and the United States that are prone to potential flooding and, in years with very high runoff, to regulate flows at The Dalles, Oregon, for the protection of Portland, Oregon, and Vancouver, Washington."*

Dec 22 '05

My wife and I were at the  
Libby Dam dedication about 30 yrs  
ago. The dam was built for  
flood control at Bonners Ferry and  
for making electricity for  
western states.

We don't need some worthless  
judge saying to spill water  
and only make enough electricity  
to light the dam.

The state of Washington  
can take of its salmon.

The state of Idaho can take  
care of sturgeon.

You have ruined fishing in the  
Kootenai river.

We don't need any worthless  
biologist demanding water for salmon.  
I have never seen any numbers  
on these fish including Bulltrout  
This shows me what a one

sided issue This is.

I hope the worthless  
judge has his electricity shut  
off.

Fish are used to the high  
water in the springs. You  
have really got everything  
mixed up.

I wonder if the state of  
California could take a percent  
of the Columbia river and you  
couldn't say anything about it.

This is how I feel and  
stop trying to ruin the  
state of Montana. The same  
situation goes for Hungry Horse  
Keep your hands off.

Richard D. Swinner  
4000 Highway 2 West  
Troy Montana 59935

Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses

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**COMMENTER**

**RESPONSES**

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**SWENNES, RICHARD**

1. We appreciate the commenter's concerns. In fact, we are attempting to balance as many uses of the river as possible, including power, flood control and fish. There is no simple solution.



Reference: 86693

JAN 03 2006

Evan Lewis  
Environmental Resources Section  
Seattle District  
US Army Corps of Engineers  
PO Box 3755  
Seattle WA 98124-3755

**Re: Draft Environmental Impact Statement for the Upper Columbia Alternative  
Flood Control and Fish Operations**

Dear Mr. Lewis:

I am providing the following coordinated comments on behalf of BC provincial agencies regarding the Draft Environmental Impact Statement (DEIS) evaluating the potential effects of alternative flood control (VARQ) and fish operations at Libby and Hungry Horse dams in the Upper Columbia River basin. BC Hydro, the Canadian entity under the Columbia River Treaty, will respond separately to treaty storage issues that involve power generation and flood control.

1

On April 25, 2003, during the previous Environmental Assessment process, my predecessor provided you with a matrix listing the possible impacts of VARQ implementation in Canada. I have attached a more recent version of the matrix for your review. This new matrix highlights areas where we continue to have concerns about potential negative impacts of VARQ. We encourage the Corps to ensure that the negative impacts of VARQ are minimized.

2

It is our understanding that the proposed VARQ flood control operation presents flood control and power generation concerns in Canada. BC Hydro, the Canadian entity, is requesting that implementation of the Libby VARQ operation be deferred until the Entities have agreed on a method to address the power and flood control impacts in Canada. The Province supports the Canadian entity in this request.

.../2



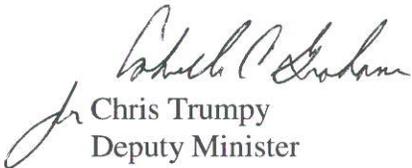
3

The Province of British Columbia reserves all of its rights, including the right to seek compensation in the appropriate forum, for any negative impacts within British Columbia of the alternative flood control procedures and fish operations at Libby and Hungry Horse dams.

4

As with the previous Environmental Assessment, interim implementation of VARQ and the scoping of the Environmental Impact Statement, British Columbia remains committed to working with the US Army Corps of Engineers to evaluate the impact of VARQ implementation upon Canada. We look forward to your response.

Yours truly,



Chris Trumpy  
Deputy Minister

Attachment:

cc: Athana Mentzelopoulos, Deputy Minister, Intergovernmental Relations Secretariat  
Bill Bennett, Minister of State for Mining  
Greg Reimer, Deputy Minister, Energy, Mines and Petroleum Resources  
Lorne Brownsey, Deputy Minister, Aboriginal Relations and Reconciliation  
Bob Elton, Chair, Canadian CRT Entity, B.C. Hydro  
Tom Wallace, Chair, Columbia River Treaty Permanent Engineering Board

**Koocanusa on the Canadian Side**

<b>Water Quality</b>	Identify effects.
<b>Sediment Quality</b>	Could VARQ disturb contaminated sediment?
<b>Air Quality</b>	Identify effects.
<b>Fish</b>	<p>Entrainment for bull trout and kokanee; neither of these are addressed in the EIS. Are entrainment impacts greater or less under VARQ? In addition to fish losses from Lake Koocanusa, a major concern with respect to kokanee entrainment is the potential for impacts on Kootenay Lake south arm kokanee restoration. A joint Canada-US project funded by Bonneville Power Administration has been initiated to restore kokanee stocks in tributaries to the south arm. Kokanee returning to these streams to spawn have been extirpated (or nearly so), and historically provided an important food source for rainbows, bull trout, and endangered white sturgeon and burbot in that area. Kokanee egg plants in these tributaries have been implemented and fertilization of the south arm is now being undertaken to address this issue. If Koocanusa kokanee are entrained in large numbers, they will find their way to Kootenay Lake, where they will compete with the south arm fish we are attempting to restore. Such a competitive interaction would likely reduce the effectiveness of the restoration work. Koocanusa kokanee will also attempt to return to their natal streams, bypassing the south arm tributaries and other streams where they might otherwise offer feeding opportunities to sturgeon and burbot.</p> <p>Data gaps?</p>
<b>Recreation</b>	Concern remains about the rate and timing of the summer salmon release drawdown. It is possible that the reservoir may fall below the recreation minimum before the end of the recreation season.
<b>Navigable waters</b>	Potential effects on use need to be determined.
<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.

**Canadian Border to Kootenay Lake, including Creston Valley Wildlife Mgmt Area**

<b>Water Quality</b>	Identify possible effects on erosion, and total gas pressure.
<b>Sediment Quality</b>	Identify effects.
<b>Fish</b>	Identify effects on: productivity, higher flows, increased phosphorous loading. Higher flows during the spring should increase phosphorus (P) loading to the lake, provided that the density of the water from the river is able to mix with the epilimnion of the lake. Higher flows will also contribute to partial mixing of the South Arm water with the North Arm water and this will be important to assess in determining the overall response of the ecosystem to nutrient addition from fertilizer. If the temperature is suitable, higher flows in the spring should have an increased benefit to the overall nutrient regime in the lake. However, higher flows could contribute to flushing of phytoplankton and nutrients if the water residence time of the South Arm is changed significantly. Determine kokanee and sturgeon population benefits. Positive benefits to other fish need to be quantified. See comments on Kooconusa kokanee entrainment above.
<b>Wildlife</b>	There are more than 250 species in the area. Endangered species nest in the area of flooding: Forster's Tern, Northern Leopard frog. CVWMA pumping costs associated with VARQ need to be determined with consideration of compensation. The positive benefits of fish flows on targeted species must continually be evaluated against the real or potential negative impacts on other species.
<b>Agriculture</b>	Concerns of agriculture interest group need to be determined. Pumping costs need to be determined with consideration of compensation.
<b>Flood Protection</b>	Concerns and data gaps need to be identified. By maintaining a higher reservoir level prior to freshet, there is a higher risk of flood...even with improved forecasting and adaptive management. Levee Damage Kootenay R US border to Kootenay Lake: Deterioration of dikes involves bank sloughing due to fluctuating river levels (Northwest Hydrologic Consultants Report). It appears that the report does not address this issue. The question being does the change in release pattern from Libby associated with VARQ result in an increase in this effect (higher frequency and magnitude of river levels fluctuations)? Kootenay Lake and Kootenay River levels affect the rate of channel shifting and erosion of property. It appears that the report does not address this issue.
<b>Recreation</b>	Identify potential effects and benefits from changes to levels.
<b>Navigable waters</b>	Potential effects on use need to be determined.

<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.
<b>Creston Valley Wildlife Mgmt Area</b>	Increased frequency of higher flows and overtopping of levees in the spring and early summer from VARQ could have impacts on listed species. (See Attachment 1 of our "Scoping letter" from Jim Mattison of LWBC dated Feb 26, 2002, commenting on EA process)

**Kootenay Lake**

<b>Groundwater</b>	High Summer ground water levels need to be determined.
<b>Water Quality</b>	Concerns include: potential for erosion, non-point source agricultural pollution, contaminants being flushed into the lake, phosphorous loading, increased nutrient loading. Higher flows resulting in higher lake levels will increase flows through the West Arm which could flush out phytoplankton and nutrients. See comments on Canadian border to Kootenay Lake above.
<b>Fish</b>	Benefits to Kokanee from flushing mysid shrimp (through West Arm). See comments on Koocanusa kokanee entrainment above.
<b>Flood Protection</b>	A flood impact analysis on Kootenay Lake needs to be done. Interests, water levels, data gaps need to be determined.
<b>Recreation</b>	Identify potential effects and benefits from changes to levels.
<b>Navigable waters</b>	Potential effects on use need to be determined.
<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.
<b>Others</b>	Dike quality :any effects by VARQ Storage / maintaining water licences.

**Kootenay Lake West Arm to Grohman Narrows**

<b>Water Quality</b>	Total gas pressure effects need to be determined.
<b>Flood Protection</b>	Interests affected by the proposal and their concerns need to be identified.
<b>Recreation</b>	Identify potential effects and benefits from changes to levels.
<b>Navigable waters</b>	Potential effects on use need to be determined.
<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.
<b>Others</b>	Storage / maintaining water licence

**Grohman Narrows to Brilliant Dam**

<b>Water Quality</b>	Incidences and extent of elevated total gas pressure will increase when VARQ fish flows lead to forced spills on the lower Kootenay. Brilliant Expansion will reduce gas production at that Project, but contrary to suggestions in the EIS, elevated gas levels at the other lower Kootenay dams will pass into the transboundary reach of the Columbia.
<b>Flood Protection</b>	Interests effected by the proposal and their concerns need to be identified.
<b>Erosion issues</b>	Could impact water quality and flood protection
<b>Recreation</b>	Identify potential effects and benefits from changes to levels.
<b>Navigable waters</b>	Potential effects on use need to be determined.
<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.
<b>Others</b>	Storage / maintaining water licence

**Brilliant Dam to the U.S. Border**

<b>Water Quality</b>	Erosion issues / total gas pressure, contaminants. Incidences and extent of elevated total gas pressure will increase due to fish-flow induced forced spills on the lower Kootenay and Pend d'Oreille.
<b>Air Quality</b>	Air quality issues due to lower Lake Roosevelt levels
<b>Fish</b>	Total gas pressure – What are TPG risks and impacts? Will Brilliant Expansion have the capacity to pass VARQ flows without spilling? Stranding of eggs – at what time of year and for which species is additional stranding (beyond the status quo) likely to occur? The effects on sturgeon need to be identified
<b>Recreation</b>	Identify potential effects and benefits from changes to levels.
<b>Navigable waters</b>	Potential effects on use need to be determined.
<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.
<b>Others</b>	Flows

**Duncan Reservoir to Kootenay Lake**

<b>Vegetation</b>	Effects upon vegetation need to be determined.
<b>Fish</b>	Increased spawning – the concern is stranding of kokanee eggs. What effects on Burbot spawning? What are the impacts on Duncan Dam operations from VARQ operations? Specifically the April through October flows (related to P loading into Kootenay Lake) Are the Duncan WUP fish flow protocols at risk?
<b>Wildlife</b>	Wetland habitat – increased elevation of Kootenay could effect Painted Turtle and other wetland habitat
<b>Flood Protection</b>	Demand for flood control - erosion Duncan River and Goat River deltas: Kootenay Lake and Kootenay River levels affect the rate of channel shifting and erosion of property. It appears that the report does not address this issue.
<b>Recreation</b>	Identify potential effects and benefits from changes to levels.
<b>Navigable waters</b>	Potential effects on use need to be determined.
<b>First Nations Heritage and Archaeological Interests</b>	Potential impacts on heritage sites need to be determined.
<b>Others</b>	Data gaps in all areas to confirm that biological impacts are not huge

**COMMENTER**

**RESPONSES**

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**TRUMPY, CHRIS**

British Columbia  
Ministry of  
Environment

1. Thank you for providing the updated matrix. Revisions to the EIS have been made to address or clarify effects on Canadian levees and Duncan Dam fish flow protocols (Section 3.3.1); and total dissolved gas levels in Canada (Section 3.3.2); kokanee entrainment at Libby Dam, springtime phosphorus loading of the river near Creston, and mysid flushing from Kootenay Lake (Section 3.3.3); wetlands around Kootenay Lake (Section 3.3.6); cultural resources in Canada (Section 3.3.9); and Kootenay Lake navigability and Canadian agricultural impacts (Section 3.3.12).
2. Comment noted. Please see Response to BC Hydro's Comments.
3. Comment noted.
4. Thank you for your comments and we look forward to your continuing contributions to this process.

Sent: Thursday, December 29, 2005 6:43 PM  
To: Upper Columbia EIS  
Subject: Fw: River Flows on the Kooetnai River

----- Original Message -----

From: dean walston  
To: uceis@army.mil  
Sent: Thursday, December 29, 2005 7:20 PM  
Subject: River Flows on the Kooetnai River

Evan Lewis,  
U.S. Army Corp of Engineers,  
Box 3755  
Seattle, Wa., 98124

Dear Mr Lewis,

1

We would like to inform you that we firmly believe the U.S. Army Corps of Engineers should continue the alternative as introduced in 2003, by using the Var-Q for water release at the Libby Dam. We strongly believe at NO TIME should water be spilled over the spillways except in case of emergency. We have noted damage to aquatic insect hatches, nesting of Canadian Geese, bulltrout, and some damage to private property along the river when the water was previously released on the spillway.

Thank you for allowing us to voice our opinion on this matter.

Respectfully

Dean V. Walston  
Maryln R. Walston  
5683 Kootenai River Road  
Libby, Mt. 59923t

**COMMENTER**

**RESPONSES**

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**WALSTON, DEAN  
AND MARYLN**

1. Thank you. Since the release of the Draft EIS, the USFWS issued a Biological Opinion on the effects of Libby Dam operations on Kootenai River white sturgeon and bull trout. The 2006 USFWS BiOp issued on February 18, 2006, found the proposed action by the Corps and BPA would jeopardize the sturgeon, and included a Reasonable and Prudent Alternative (RPA) to avoid jeopardizing the continued existence of the sturgeon. The preferred alternative identified in the Final EIS, LVB, is consistent with the USFWS 2006 Biological Opinion RPA. LVB allows for releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

In addition, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeon's biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. As part of this protocol, the Corps will not voluntarily exceed elevation 1764 at Bonners Ferry. The 2006 BiOp RPA recognizes that there are several ways to achieve the desired attributes, and allows the Corps and BPA the flexibility to select the means to provide for these attributes. While release of flows up to 35 kcfs out of Libby is one method to achieve the desired attributes in the near term, the Corps and BPA are pursuing habitat actions that may reduce the need for such releases in the future.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 8, MONTANA OFFICE**  
**FEDERAL BUILDING, 10 West 15<sup>th</sup> St, Suite 3200**  
**HELENA, MONTANA 59626**

Ref: 8MO

December 20, 2005

U.S. Army Corps of Engineers, Seattle District  
Attn: Mr. Evan Lewis, PM-PL-ER  
P.O. Box 3755  
Seattle, WA 98124-3755

and

Bureau of Reclamation  
Attn: Mr. Dan Lechefskey  
1150 N. Curtis Road, Suite 100  
Boise, ID 83706-1234

Re: EPA Comments on the Upper Columbia Alternative  
Flood Control and Fish Operations Draft Environmental  
Impact Statement

Dear Mr. Lewis and Mr. Lechefskey:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement (DEIS) for the Upper Columbia Alternative Flood Control and Fish Operations Project. The EPA reviews EISs in accordance with its responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major Federal agency action. The EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document (see explanation of EPA DEIS rating criteria enclosed).

The EPA supports the basic goal of increasing spring and summer releases from Libby Dam and Hungry Horse Dam as identified in VARQ FC to better simulate a more natural hydrograph and benefit fish listed as threatened or endangered under the Endangered Species Act (ESA), as well as to realize other aquatic ecosystem benefits (i.e. riparian habitat development, habitat connectivity, more normal temperature regimes, etc.) while maintaining adequate flood control benefits and other purposes of the dams. The EPA does not object to the preferred alternatives for operating Libby and Hungry Horse Dams (Alternative LV1 for Libby Dam, and Alternative HV for Hungry Horse Dam), although we do have some comments and recommendations regarding these alternatives that are discussed below, and in our more detailed comments (enclosed).



We believe operation of Libby Dam and Hungry Horse Dam should avoid creation of an unnatural double peak hydrograph as much as possible, since that can result in dewatering of reservoir and river substrates resulting in significant adverse impacts upon productivity of benthic insects that provide food for fish, as well as cause other adverse impacts to the aquatic ecosystem. A double peak hydrograph occurs when high spring discharges drop to lower flows in the late spring {June}, only to rise again to high levels several weeks later {July or August}. It is our understanding that deeper July and August reservoir drawdowns promote this double peak hydrograph. For example, the DEIS reports that 85 foot annual drawdowns of Hungry Horse Reservoir expose vast areas of reservoir bottom to drying, killing aquatic insects which are the primary food supply for fish. Such deep reservoir level drawdowns and double peak hydrographs should be avoided so that a natural single peak hydrograph occurs with peak late spring runoff followed by gradual declining flows into and through the summer as much as possible.

We recommend that the preferred alternatives, LV1 and HV, be modified to avoid or minimize occurrences and/or reduce the magnitude of a double peak hydrograph. It would appear to be possible to increase June flows somewhat at the expense of April, May, July and August flows to avoid or reduce occurrences and/or magnitude of a double peak hydrograph, and thus, create a more natural hydrograph with gradual declining flows through the summer. It is our understanding that such modifications would not substantially affect downstream salmon, but would significantly benefit benthic productivity and upstream fisheries in the Montana reservoirs and rivers.

Also, while we believe the proposed Alternative LV1 operational changes at Libby Dam to simulate a more natural hydrograph are a step in the right direction to assist sturgeon recovery and address other fisheries impairments in the Kootenai River, they are only a step, and we are concerned that Alternative LV1 may not go far enough to restore natural conditions in the river to result in effective sturgeon recovery. It appears to us that additional steps may need to be taken to more completely address the limiting factors impairing sturgeon recovery and the aquatic ecosystem. We believe that Libby Dam Alternative LV2 increasing dam releases to 35,000 cfs should be evaluated further, and considered as part of a potential future long-term strategy for helping to more effectively recover the endangered white sturgeon, and restore a more natural hydrograph to the Kootenai River with other resultant aquatic ecological benefits (e.g., benefit bald eagle foraging opportunities, riparian vegetation-most notably recruitment of cottonwoods to suitable shoreline areas, benefit kokanee, redband trout, and westslope cutthroat trout). Alternative LV2 would be more consistent with the U.S. Fish & Wildlife Service (USFWS) Biological Opinion, calling for an increase in discharge rate for sturgeon flows by 10,000 cfs above current powerhouse capacity to a maximum discharge rate of 35,000 cfs.

Proposed flows of 35,000 cfs in Alternative LV2 would exceed existing Libby Dam powerhouse capacity, and thus, require modifications at the dam (e.g., changes to the spillway configuration or additional powerhouse capacity), so that Alternative LV2 could not be implemented until such modifications were planned and designed in a manner that would avoid exceedances of Montana's total dissolved gas standard (TDG) of 110% saturation. However, we believe the technical, economic and environmental feasibility of potential Libby Dam

3

modifications to implement Alternative LV2, and the associated risks and benefits of this alternative should be evaluated further.

4

Also, it appears that the preferred alternatives, LV1 and HV, may result in slightly more frequent spills of water over the spillways during spring runoff than current operations, and this may result in slightly more frequent exceedances of the TDG 110% saturation standards (i.e., it appears that Libby Dam spills exceeding 1,000 cfs and Hungry Horse Dam spills exceeding 2,170 cfs may result in TDG standard exceedances). We recognize that there are many fisheries, flood control, water quality, and other trade-offs that need to be considered, and while we believe Libby and Hungry Horse Dams should be operated in a manner that avoids and/or minimizes excess spill over the spillways that cause exceedances of Montana's TDG 110% saturation standard as much as possible, we recognize the many trade-offs involved, and support dam and reservoir operations that result in more natural flow and water temperature regimes and net overall benefits to the aquatic ecosystems.

5

Also, while the DEIS discussed temperature effects associated with the proposed operations, the extent of remaining unnatural, adverse temperature effects after implementation of the preferred alternatives are not clearly summarized. We believe it would be helpful to public understanding to more clearly summarize in the FEIS any significant remaining temperature effects upon the aquatic ecosystems in the Kootenai and South Fork and mainstem Flathead Rivers that occur as a result of dam and reservoir operations with implementation of the preferred alternatives, including the use of the selective withdrawal systems that are now operational at both dams. The FEIS should clarify if remaining unnatural, adverse temperature effects could be further reduced with additional optimization of dam/reservoir operations and selective withdrawal systems.

6

Finally, while we anticipate that modified operations at Libby and Hungry Horse Dams that benefit river and reservoir fisheries would be consistent with goals of Total Maximum Daily Loads (TMDLs) intended to restore full support for fisheries and aquatic life uses in the Kootenai-Columbia and Flathead-Clark Fork-Pend Oreille-Columbia River systems, we recommend that the Corps of Engineers and Bureau of Reclamation consult with the Montana and Idaho Departments of Environmental Quality and Washington Dept. of Ecology to assure that the proposed modified dam and reservoir operations and resultant river flow regimes will be consistent with TMDLs and water quality restoration plans that have been prepared, or are being prepared, in Montana, Idaho and Washington for the Kootenai-Columbia and Flathead-Clark Fork-Pend Oreille-Columbia River systems (e.g., contact Robert Ray with the Montana DEQ at 406-444-5319 and Marti Bridges with the Idaho DEQ at 208-373-0382).

7

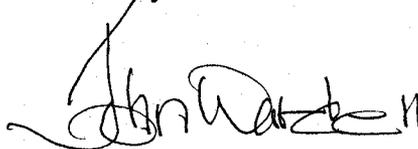
Our more detailed comments, questions, and concerns regarding the analysis, documentation, and/or potential environmental impacts of the Upper Columbia Alternative Flood Control and Fish Operations DEIS are enclosed for your review and consideration as you complete the Final Environmental Impact Statement (FEIS). Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the Upper Columbia Alternative Flood Control and Fish Operations DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient

Information). A copy of EPA's rating criteria is attached.

7 As can be seen from the enclosed comments, the EPA does not object to proposed VARQ FC modifications in Libby and Hungry Horse dam/reservoir operations to simulate more natural hydrographs and benefit threatened or endangered fish, although EPA is concerned about adverse impacts to the aquatic ecosystem that may remain as a result of dam/reservoir operations, and recommends avoidance of unnatural double peak hydrographs, and further evaluation of Alternative LV2 as part of a potential long-term strategy to more effectively recover the endangered Kootenai River white sturgeon. EPA supports dam and reservoir operations that avoid exceedances of TDG saturation standards as much as possible, and that result in more natural flow regimes and net overall benefits to the aquatic ecosystems. The EPA believes additional information is needed to fully assess and mitigate all potential impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 457-5022 or in Missoula at 406-329-3313, or via e-mail at [potts.stephen@epa.gov](mailto:potts.stephen@epa.gov). Thank you very much for your consideration.

Sincerely,



John F. Wardell  
Director  
Montana Office

Enclosures

cc: Larry Svoboda/Julia Johnson, EPA, 8EPR-N, Denver  
Mark Kelley/Robert Ray/Tom Reid, MDEQ, Helena  
Brian Marotz, Montana DFWP, Kalispell

# U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

## Definitions and Follow-Up Action\*

### Environmental Impact of the Action

**LO - - Lack of Objections:** The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

**EC - - Environmental Concerns:** The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

**EO - - Environmental Objections:** The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

**EU - - Environmentally Unsatisfactory:** The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

### Adequacy of the Impact Statement

**Category 1 - - Adequate:** EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

**Category 2 - - Insufficient Information:** The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

**Category 3 - - Inadequate:** EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.



# **EPA Comments on Upper Columbia Alternative Flood Control and Fish Operations Draft Environmental Impact Statement**

## **BRIEF PROJECT OVERVIEW:**

The U.S. Army Corps of Engineers and Bureau of Reclamation have prepared this DEIS to evaluate potential effects of alternative flood control and fish operation regimes for Libby Dam on the Kootenai River and Hungry Horse Dam on the South Fork Flathead River. Changed dam operations are being considered for the purpose of providing reservoir and flow conditions at and below the dams for the benefit of fish listed as threatened or endangered under the Endangered Species Act (ESA), consistent with authorized project purposes including maintaining the current level of flood control benefits.

Alternatives were developed based on scoping comments and the Biological Opinions (B.O.'s) issued in 2000 and 2004 by the U.S. Fish & Wildlife Service (USFWS) and NOAA Fisheries for operation of the Federal Columbia River Power System dams. These B.O.'s determined that endangered white sturgeon in the Kootenai River were jeopardized by operation of Libby Dam, and that threatened bull trout were jeopardized by operation of Libby and Hungry Horse Dams, and recommended modified dam operations/river flow regimes to avoid jeopardy.

In the past the dams were operated using Standard Flood Control Operations (Standard FC), which consisted of releasing water from the dams from January through April to make reservoir space to capture winter runoff for flood control, with reduced water releases from May through July to allow reservoirs to refill. Standard FC was modified to improve fisheries by releasing more water from the dams during summer to augment flows for downstream salmon and year round to maintain minimum flows for bull trout. Libby Dam provides additional water releases in spring for white sturgeon. Fisheries flow augmentation reduces the likelihood and frequency of reservoir refilling.

The proposed action is to implement variable discharge flood control (VARQ FC), which involves reducing releases during the winter drawdown period of January to April in most years with low flood potential (depending on water supply forecasts), and increasing releases during the May through July refill period. The basic premise of VARQ FC is that the dam discharges during the refill period can vary based on the forecasted water supply, actual reservoir elevation, and the estimated duration of flood control. Some of the water that would be stored during the refill period under Standard FC is instead passed through the dam, which reduces the flood control storage space needed under VARQ FC without compromising system flood control.

As a flood control procedure, VARQ FC was not designed specifically for flow augmentation for fish, however, implementation of VARQ FC enables the Corps and Reclamation to more reliably supply spring and summer flows for fish while simultaneously better ensuring higher reservoir elevations in the summer. The USFWS and NOAA Fisheries support VARQ FC because of the improved probability of providing flows for listed fish in

spring and summer. VARQ FC at Libby and Hungry Horse Dams also influences operations for system flood control at Grand Coulee Dam. In years when VARQ FC operations result in higher reservoir elevations and less flood control storage space at Libby and Hungry Horse Dams, Grand Coulee Dam may have to draft deeper to maintain system flood protection.

The DEIS evaluates potential long-term implementation of VARQ FC at both dams, and evaluates four alternatives for operation of Libby Dam and two alternatives for operation of Hungry Horse Dam. Alternative LS1 is the no action alternative for operation of Libby Dam which consists of Standard FC with sturgeon, bull trout and salmon flow augmentation. Sturgeon flow augmentation would provide increased flows in accordance with the 2000 B.O. up to existing powerhouse capacity of 25,000 cfs.

Alternative LV1 is the preferred alternative for operation of Libby Dam consisting of VARQ FC with sturgeon, bull trout and salmon flow augmentation. Sturgeon flow augmentation would provide increased flows in accordance with the 2000 B.O. up to existing Libby Dam powerhouse capacity of 25,000 cfs.

Alternative LS2 would be the same as LS1, but would increase sturgeon flow augmentation beyond existing powerhouse capacity to 35,000 cfs. This alternative would require modifications at Libby Dam such as changes to the spillway configuration or additional powerhouse capacity that would not exceed Montana's total dissolved gas standard of 110% saturation. The specific modifications at Libby Dam are not addressed in this alternative, but would have to be evaluated in potential future additional NEPA documents.

Alternative LV2 would be the same as LV1, but would increase sturgeon flow augmentation beyond existing powerhouse capacity to 35,000 cfs. As with LS2, this alternative would require modifications at Libby Dam such as changes to the spillway configuration or additional powerhouse capacity that would not exceed Montana's total dissolved gas standard of 110% saturation. The specific modifications at Libby Dam are not addressed in this alternative, but would have to be evaluated in potential future additional NEPA documents.

Alternative HS is the no action alternative for operation of Hungry Horse Dam, which consists of Standard FC with bull trout and salmon flow augmentations. This includes high winter flow releases during years with 80 to 130% water supply forecasts and reduced flow releases in May and June.

Alternative HV is the preferred alternative for operation of Hungry Horse Dam, consisting of VARQ FC with bull trout and salmon flow augmentations. This includes less winter flow releases during years with 80 to 130% water supply forecasts and increases flow releases in May and June. This is the current interim operation at Hungry Horse Dam since 2003.

## COMMENTS:

### Preferred Alternatives

1. The EPA supports the basic goal of increasing spring and summer releases from Libby Dam and Hungry Horse Dam identified in the preferred alternatives (LV1 and HV) that implement VARQ FC and simulate a more natural hydrograph and benefit fish listed as threatened or endangered under the Endangered Species Act (ESA), and promote additional aquatic ecosystem benefits (i.e. riparian habitat development, habitat connectivity, more normal temperature regimes, etc.). We understand that VARQ FC would maintain adequate flood control benefits and other purposes of the dams. The EPA does not object to the preferred alternatives, Alternative LV1 for Libby Dam and Alternative HV for Hungry Horse Dam, although we have some comments and recommendations regarding these alternatives that are discussed in the comments below.

### Double-Peak Hydrograph

2. The DEIS indicates that a double peak hydrograph (page 126) occurs when high spring discharges drop to lower flows in the late spring (June), only to rise to high levels again several weeks later (July or August). This causes dewatering of substrate which re-sets the benthos to the low flow period, thus, limiting accumulation of benthic biomass that would have occurred if flows remained high continuously through the spring and summer. The DEIS states (page 135) that under all of the alternatives, double-peak operations could occur at Libby Dam as a result of the sturgeon flow pulse in the late spring, followed by the salmon flow augmentation in the summer, with bull trout minimum flows in between, and that dam operations are managed to avoid the double peak whenever possible. Figure 4-7 (page 249) shows a double peak hydrograph for Hungry Horse Dam (i.e., discharge peaks in May and August with an intervening bottom in June).

We believe it is important to do more to avoid unnatural double peak hydrographs, since that can result in significant adverse impacts upon the productivity of benthic insects providing food for fish, as well as other adverse aquatic ecosystem impacts. It is our understanding that deeper July and August reservoir drawdowns promote this double peak hydrograph. We believe such deep summer drawdowns should be avoided as much as possible so that a natural single peak hydrograph occurs with peak late spring runoff followed by gradual declining flows into and through the summer.

As we noted, the hydrograph for Hungry Horse Dam (page 249) shows discharge peaks in May and August with an intervening trough in June. While we understand the need to provide flow augmentation during summer for downstream salmon, we are concerned when the extent of such summer salmon flow augmentation from the Montana reservoirs causes an unnatural double peak hydrograph and significant loss of benthic productivity

in the Montana reservoirs and rivers. The DEIS reports that 85 foot annual drawdowns of Hungry Horse Reservoir expose vast areas of reservoir bottom to drying, killing aquatic insects which are the primary food supply for fish (pages 213, 220). It would appear to be possible to increase June flows somewhat at the expense of April, May, July and August flows to avoid or reduce occurrences and/or magnitude of a double peak hydrograph and allow more gradual declining flows through the summer, and a more natural hydrograph.

We recommend that the preferred alternatives LV1 and HV be modified to minimize and/or avoid occurrences and/or magnitude of a double peak hydrograph (i.e., increase June flows somewhat and lessen deep summer time drawdowns of the Montana reservoirs). It is our understanding that such modifications would not substantially affect downstream salmon, but would significantly benefit benthic productivity and upstream fisheries in the Montana reservoirs and rivers.

#### Alternative LV2

3. It is evident that there are multiple factors impairing fisheries in the Kootenai River, including recovery of endangered white sturgeon populations. These include:

\* Modification of the natural hydrograph. {DEIS states that construction and operation of Libby Dam has essentially reversed the natural hydrograph of the Kootenai River (i.e., dam discharges during the winter are higher than pre-dam conditions and discharges during the spring freshet are lower, page 64). Significant change to the natural flows in the Kootenai River from flow regulation at Libby Dam is considered to be a primary reason for the Kootenai River white sturgeon's continuing lack of recruitment and declining numbers. Average spring peak flows in the Kootenai River have been reduced by more than 50 percent, and winter flows have increased by 300 percent compared to pre-dam values. The natural high spring flows thought to be required by white sturgeon for reproduction rarely occurred during the May to July spawning season when suitable temperature, water velocity, and photo-period conditions would normally exist. The interim changes in dam operations in spring and summer providing for higher flows in the spring for sturgeon, and steady have helped simulate a more natural hydrograph, but they do not create a natural hydrograph. Prior to construction of Libby Dam, the average annual peak flow at Bonners Ferry was about 75,000 cubic feet per second (cfs), but since Libby Dam became operational, the average annual peak flow has been about 35,000 cfs. Sturgeon spawning and migration keys in on the spring snowmelt period. As flows increase and water temperatures rise in the spring, white sturgeon migrate upstream from Kootenay Lake to the spawning reach located between Bonners Ferry and Shorty's Island. Scientists believe that the alteration in springtime river conditions resulting from Libby Dam operations plays a role in the poor reproductive success of sturgeon since dam construction. Fish augmentation flows are also typically higher than pre-dam flows through the summer for bull trout & salmon }

\* Modified water temperature regimes that may affect habitat suitability and reproduction in the Kootenai River. {DEIS states that the effects of the dam releases on water temperatures may affect habitat suitability for certain native fishes like white sturgeon and burbot (page 64), and that temperature of dam releases influence water temperatures downstream (page 61). For instance, heat stored in Lake Kooconusa has been implicated as a cause of warmer winter river temperatures downstream, and reduced ice formation, compared to pre-dam conditions. The trigger for sturgeon spawning flow releases is 50 °F (10 °C), which usually occurs in May. The Corps provides the warmest temperatures possible in May and June to assist sturgeon spawning, although the Corps has recently been working to withdraw water from closer to the reservoir surface reservoir, but the reservoir may not be stratified until later in June. }

\* Modified spawning and rearing habitat {Cessation of periodic flushing flows has allowed fine sediments to build up in the Kootenai River bottom substrates reducing fish egg survival, larval and juvenile fish security cover, and insect production. Elimination of side-channel slough habitats in the Kootenai River flood plain due to diking and bank stabilization to provide flood protection for agricultural land; development of Creston Valley Wildlife Management Area in British Columbia and Kootenai National Wildlife Refuge in Idaho; and lower Kootenay Lake spring maximum elevations are also a contributing factor to the white sturgeon decline. Much of the Kootenai River has been channelized and stabilized from Bonners Ferry downstream to Kootenay Lake resulting in reduced aquatic habitat diversity, altered flow conditions at potential spawning and nursery areas, and altered substrates in incubation and rearing habitats necessary for survival. The DEIS states that downstream of Bonners Ferry, off-channel areas are very limited (page 64). The most notable side channel habitat occurs along the left bank (looking downstream) at Shorty's Island in the vicinity of RM 143. }

\* Depleted nutrient levels and modified macroinvertebrate populations. {DEIS states that downstream from Libby Dam, nutrient levels near Bonners Ferry tend to be similar or slightly lower than levels further upstream. As a result of low nutrient levels, chlorophyll levels and primary productivity are very low in the river downstream from the dam. Mean density of aquatic insects, an important food for fish, at sample sites above and below the dam in 2000-2001 was 914 organisms per square meter, low compared to other oligotrophic rivers in the Pacific Northwest, and the abundance of caddisflies, blackfly larvae, and mayflies had decreased substantially (page 64). While stonefly abundance remained similar to the earlier work, diversity and density of stonefly populations in the Kootenai River remained low relative to the Flathead and Fisher Rivers, although. Zoobenthos changes since implementation of more gradual ramping rates have not been studied. Reduced biological productivity and decreased prey abundance and food availability for some life stages of sturgeon downstream of Libby Dam, impairs the ability to sustain substantial populations of white sturgeon and other native fishes. }

As noted above, before Libby Dam was constructed springtime Kootenai River flows over 45,000 cfs were common (page 56), and sturgeon and other aquatic life evolved and were adapted to such high springtime peak flows. Maximum releases from Libby Dam of 25,000 cfs in Alternative LV1 and even 35,000 cfs in Alternative LV2 would still not fully restore the natural Kootenai River springtime peak flows that occurred prior to dam construction, however, LV2 would get closer to natural peak flows than LV1. Alternative LV2 increasing Libby Dam releases to 35,000 cfs would provide additional benefits for the endangered white sturgeon as well as other aquatic ecological benefits (e.g., benefit bald eagle foraging opportunities, riparian vegetation-most notably recruitment of cottonwoods to suitable shoreline areas, page 138; benefit kokanee, redband trout, and westslope cutthroat trout, page 141).

We believe the proposed Alternative LV1 operational changes at Libby Dam to simulate a more natural hydrograph are a step in the right direction to assist sturgeon recovery and address other fisheries impairments in the Kootenai River, however, they are only a step, and we are concerned that Alternative LV1 may not go far enough to restore natural conditions in the river to result in effective sturgeon recovery. It appears to us that additional steps may need to be taken to more completely address the limiting factors discussed above. The U.S. Fish & Wildlife Service (USFWS), in their 2000 Biological Opinion, called for an increase in maximum discharge rate for sturgeon flows by 10,000 cfs above current powerhouse capacity to a maximum discharge rate of about 35,000 cfs.

Alternative LV2 Libby Dam releases of 35,000 cfs would exceed existing powerhouse capacity, and thus, require modifications at the dam (e.g., changes to the spillway configuration or additional powerhouse capacity). Alternative LV2, therefore, could not be implemented until such modifications were properly planned and designed in a manner that would avoid exceedances of Montana's total dissolved gas standard of 110% saturation. Specific modifications at Libby Dam to implement LV2 are not addressed in this DEIS, but would have to be evaluated in potential future additional NEPA documents.

We recommend that the technical, economic, and environmental feasibility of Libby Dam modifications for Alternative LV2 and associated risks and benefits of this alternative be evaluated further as part of a long-term strategy to promote more effective recovery of the endangered white sturgeon. Potential benefits include more closely simulating the natural pre-dam river hydrograph with associated additional aquatic ecosystem benefits, and potentially reduced frequency of spills that cause exceedances of total dissolved gas standards.

Of course, flood control concerns need to be carefully evaluated in efforts to promote a more natural Kootenai River hydrograph with Alternative LV2. The DEIS states that (page 102) Libby Dam outflow is managed to avoid river stages in excess of the current flood stage of 1764 feet elevation at Bonners Ferry. It is not clear to us if it is known whether Alternative LV2 could be implemented in a manner that would avoid exceeding

the flood stage 1764 elevation at Bonners Ferry. This should be clarified in the FEIS.

#### Water Quality-Total Dissolved Gases

4. As you know, Montana has a 110% Total Dissolved Gas (TDG) saturation standard which should not be exceeded. We are concerned that increased Libby Dam and Hungry Horse Dam spills (i.e., flows over the spillway), intentional or unintentional, may increase TDG concentrations in the Kootenai and Flathead Rivers downstream, which could cause more frequent exceedances of the TDG saturation standards with potential adverse effects on aquatic life (including sensitive and threatened fish species).

The DEIS states that Libby Dam can spill up to approximately 1,000 cfs via the spillway without exceeding the Montana water quality standard of 110% TDG saturation, and that Libby Dam powerhouse outflow is generally at 110 percent saturation or less (page 60). At higher spill levels, TDG saturation levels quickly increase to a maximum of about 132% saturation at more than 7,000 cfs of spill via the spillway. Spill discharges via the low-elevation sluiceway outlets generally would result in TDG levels higher than 110% at any discharge rate. Although the DEIS states that the addition of fish flows decreases the risk of harm to aquatic life from elevated TDG levels (page 126). The DEIS states that operators attempt to avoid spill whenever possible to avoid increasing TDG levels and the possibility of resulting harm to aquatic organisms, and that Libby Dam spilled most recently in 2002 (via the spillway for flood control purposes) and 1985 (via the sluiceways as a test of dam equipment). We also understand that Kootenai Falls reduces higher TDG levels created by spill at Libby Dam such that TDG levels below the falls are independent of the TDG levels upstream from the falls (i.e., waterfalls and rapids help to dissipate gases into the atmosphere).

The Executive Summary of the DEIS (page S-17) estimates that for Libby Dam TDG saturation would: 1) exceed Montana's 110% saturation standard in 3 out of 52 years; 2) exceed 120% saturation in 2 out of 52 yrs; and 3) exceed 130% saturation in 1 out of 52 yrs. However on page 115 of the DEIS it is stated that over the 1948-1999 period of record, simulations of LV1 resulted in spill likely to cause TDG levels higher than the 110% saturation standard in 3 years over a total of 31 days. In 2 of those years over a total of 24 days, TDG levels from spill would have exceeded 125 % saturation. These estimates of TDG saturation standard exceedances appear to show greater potential for standard exceedances than the estimates in Table S-3 of the Executive Summary. The extent of TDG saturation exceedances expected to occur with the preferred alternative should be clarified in the FEIS, and should be consistent throughout the document.

In regard to TDG levels associated with Hungry Horse Dam operations, the DEIS indicates that flows over the spillway that are under 15% of the total release from Hungry Horse Dam ensures that the TDG saturation standard of 110% is not exceeded (page 252). Since the powerplant hydraulic capacity at Hungry Horse Dam is 12,300 cfs (page 275) it would appear that releases over the spillway at Hungry Horse Dam over 2,170 cfs may

result in TDG standards exceedances (i.e.,  $12,300 \text{ cfs} / 0.85 = 14,470 \text{ cfs}$ ;  $14,470 \text{ cfs} - 12,300 \text{ cfs} = 2,170 \text{ cfs}$ ). It also appears that the proposed HV operation at Hungry Horse Dam may result in additional spills during spring runoff and more frequent exceedances of the TDG 110% saturation standard than current operations (page 276).

The Executive Summary (page S-24) estimates that for Hungry Horse Dam increases in TDG saturation levels could increase from May through July, but that changes are not quantifiable with available data. It is also stated that under simulated releases the chances of the preferred alternative, HV, exceeding 15% spill is 1% in June, but that changes in saturation levels "appear to be minor," and that the more natural temperature regimes and other physical properties of the river associated with Alternative HV would benefit fisheries in the river and reservoir overall. Is it correct to summarize these findings by saying that while there is a minor increase in risks of exceedances of Montana's TDG saturation standard with Alternative HV, the other benefits associated with a more normal hydrograph and more natural temperature regimes would result in an overall net benefit to fisheries and aquatic life?

To summarize TDG issues, it appears that the proposed LV1 and HV operations may result in slightly more frequent spills of water over the spillway during spring runoff than current operations, and this may result in somewhat more frequent exceedances of the TDG 110% saturation standards (pages 115, 275). Alternatives LV1 and HV, however, include augmented fisheries flows and more natural hydrographs and temperatures, which benefit fisheries. We recognize, therefore, that there are many fisheries, water quality, flood control, and other trade-offs that need to be considered, and while we believe Libby and Hungry Horse Dams should be operated in a manner that avoids and/or minimizes excess spill over the spillways that cause exceedances of Montana's TDG 110% saturation standard as much as possible, we understand the many trade-offs involved, and support dam and reservoir operations that result in more natural flow regimes and net overall benefits to the aquatic ecosystems.

5. The Corps of Engineers and Bureau of Reclamation should also consult and coordinate with the appropriate State water quality agencies in Montana and downstream States to assure that State water quality certification requirements under Section 401 of the Clean Water Act are followed (e.g., in Montana contact Tom Reid of the Montana DEQ at 406-444-5329).

#### Water Quality-Temperature

6. The effects of flow manipulation on temperature regimes, and subsequent effects on native fish species, are not well understood, but it would appear that lower river flows during the winter months could reduce river temperatures, since the river at lower flows would be more susceptible to temperature influences from cold ambient air temperatures. The DEIS, however, indicates that the Libby Dam preferred alternative, LV1, is likely to increase Kootenai River winter water temperatures and reduce ice formation, since less

winter cooling in the reservoir (Lake Koocanusa) could slightly increase temperatures of dam outflows during the winter months (page 58). Average water temperatures in the Kootenai River are typically warmer in the winter (by 3 degrees Celsius; 37 degrees Fahrenheit) and colder in the summer (by 1 - 2 degrees Celsius; 34 - 36 degrees Fahrenheit) than they were before Libby Dam was built. However, during large water releases and spills at Libby Dam in the spring, water temperatures in the Kootenai River may be colder than under normal non-spill spring flow conditions. A selective water withdrawal system at the Libby Dam powerhouse allows the Corps to withdraw cooler water closer to the reservoir surface, which provides some temperature control. The Corps provides the warmest temperatures possible in May and June to assist sturgeon spawning, although the reservoir may not be stratified until later in June.

Temperatures of Libby Dam discharges vary within a range over the year in accordance with an agreement with the state of Montana. Current operations manage for 46 °F to 54 °F (8 to 12 °C). The trigger for sturgeon spawning flow releases is 50 °F (10 °C), which usually occurs in May (page 61). As the water flows downstream, its temperature is influenced heavily by solar radiation, air temperature and wind. These factors are magnified by low flows, and large water surface area relative to water depth. However, temperatures of dam releases are still believed to have some influence on water temperatures downstream. The DEIS states that there is little information to suggest that intake water temperatures at the Kootenai Tribal hatchery at Bonners Ferry would change noticeably as a result of Alternative LV1 (page 115).

We did not see as much quantitative disclosure of temperature effects of Hungry Horse Dam operation on the South Fork Flathead River in the DEIS discussion of water quality impacts. The DEIS indicates that Hungry Horse Dam has essentially reversed the natural hydrograph of the South Fork Flathead River (similar to what Libby Dam has done to the Kootenai River), and that cold water releases in warmer productive months have impaired biological productivity (page 214). Selective withdrawal systems became operational at Hungry Horse Dam in 1995 which allow improved temperature control and create more normal temperature regimes in the SF Flathead River below the dam (page 214). It is still not clear, however, if the "more normal temperature regimes" in the South Fork and mainstem Flathead River above Flathead Lake are adversely impacting aquatic ecosystems, and if they are, the magnitude of these adverse temperature impacts on the aquatic ecosystem are unclear.

It would be helpful to public understanding to more clearly summarize in the FEIS the significant unnatural, adverse temperature effects upon the aquatic ecosystems in the Kootenai and South Fork and mainstem Flathead Rivers that remain as a result of implementing the preferred alternatives, LV1 and HV. The FEIS should also clarify if remaining unnatural, adverse temperature effects could be further reduced with additional optimization of dam/reservoir operations, including selective withdrawal systems.

7. Also, it is not clear if the proposed operations at Libby Dam would further impair spawning success for burbot in the Kootenai River and Kootenay Lake, since we understand burbot prefer cooler winter river temperatures for spawning (page 69). The DEIS states that burbot have been observed to spawn under the ice, and we understand that ice formation was common on the lower Kootenai prior to construction of Libby Dam, but that now average water temperatures in the Kootenai River are typically warmer in the winter (by 3 degrees Celsius; 37 degrees Fahrenheit) and colder in the summer (by 1 - 2 degrees Celsius; 34 - 36 degrees Fahrenheit) than they were before Libby Dam was built. The FEIS should more clearly disclose potential Libby Dam operational effects on burbot. Can dam operations be adjusted to reduce unnatural temperature related adverse effects to burbot spawning and rearing success, without adversely impacting the other fisheries and water quality and flood control effects and other trade-offs?

#### Consistency with TMDLs

8. The Kootenai River is on Montana's listed of water quality impaired waters prepared under Section 303(d) of the Clean Water Act. The Kootenai River is listed as impaired from Libby Dam to the Idaho border (50.8 miles) with partial impairment of aquatic life support and coldwater fisheries (trout) beneficial uses with probable causes identified as flow alteration and thermal modifications, and probable sources identified as hydromodification, upstream impoundment, and flow regulation/modification (page 58). The Idaho Department of Environmental Quality also lists the Kootenai River under Section 303 (d) of the Clean Water Act as not supporting beneficial uses for aquatic life due to siltation and thermal modifications.

The Montana DEQ also lists the South Fork Flathead River, Flathead Lake and Clark Fork River as impaired. The SF Flathead River is partially impaired for primary contact recreation and other uses are not fully assessed, with probable causes of impairment identified as flow alteration and probable sources identified as hydromodification. Flathead Lake is partially impaired for aquatic life with probable causes identified as algal growth/chlorophyll, mercury, metals, nutrients, organic enrichment/low DO, and PCBs, and siltation, and probable sources identified as municipal point sources, silviculture, urban runoff/storm sewers, hydromodification, upstream impoundment, flow regulation/modification, atmospheric deposition, and unknown sources.

The Clark Fork River (from Flathead River to Noxon Reservoir 58.9 miles) is partially impaired for cold water fisheries and drinking water with probable causes listed as cadmium, metals, and habitat alterations, and probable sources listed as resource extraction, abandoned mining, hydromodification, and dam construction. The Idaho DEQ lists the Clark Fork River from the Montana/Idaho border to Lake Pend Oreille (12 miles) as impaired for mercury, TDG, and unknown toxic substances (pages 207-208), with Lake Pend Oreille impaired by TDG and the Pend Oreille River impaired by TDG, temperature and sediment.

While we anticipate that modified operations at Libby and Hungry Horse Dams that benefit river and reservoir fisheries would be consistent with TMDL goals that are intended to restore full support for fisheries beneficial uses, we recommend that the Corps of Engineers and Bureau of Reclamation consult with the Montana and Idaho Departments of Environmental Quality and the Washington Department of Ecology to assure that proposed dam and reservoir operations and resultant river flow regimes will be consistent with TMDLs and water quality restoration plans that have been prepared, or are being prepared, in Montana, Idaho and Washington for the Kootenai-Columbia and Flathead-Clark Fork-Pend Oreille-Columbia River systems (e.g., contact Robert Ray with the MDEQ at 406-444-5319 and Marti Bridges with the IDEQ at 208-373-0382).

9. The DEIS states that the Montana DEQ is required to ensure that water quality restoration plans and permits are developed by 2007 for all waters on the TMDL list (page 299). It may be of interest to know that a settlement agreement has been negotiated with plaintiffs in Montana TMDL lawsuits, and the terms of the settlement agreement, entered into a consent decree in Federal District Court, extends the due dates for many Montana TMDLs and water quality restoration plans beyond the year 2007 (e.g., to as late as 2012 for some waters).

**COMMENTER**

**RESPONSES**

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**WARDELL, JOHN**

EPA Region 8

Letter Comments

1. Comment noted. Since the release of the draft EIS, the USFWS issued a Biological Opinion (BiOp) on the effects of Libby Dam operations on Kootenai River white sturgeon and bull trout on February 18, 2006. The 2006 USFWS BiOp found the Proposed Action by the Corps and BPA would jeopardize the sturgeon and included a Reasonable and Prudent Alternative (RPA) to avoid jeopardizing the continued existence of the sturgeon. The preferred alternative identified in the Final EIS as LVB+HV, is consistent with the RPA in the USFWS 2006 BiOp. LVB allows for a range of releases from Libby Dam up to 35 kcfs, pending appropriate water conditions, providing for a normative hydrograph to achieve the desired habitat attributes of depth, velocity and temperature. The USFWS identified these habitat attributes to support successful sturgeon spawning and recruitment. Currently, the only means available to provide up to 35 kcfs (10 kcfs above the powerhouse capacity of approximately 25 kcfs) from Libby Dam is by spill. Spill of up to 10 kcfs will increase total dissolved gas (TDG) concentrations above the Montana water quality standard of 110% saturation. The Corps, BPA, and the USFWS are coordinating with the State of Montana on the TDG effects of spilling 10 kcfs.

Additionally, the Corps, BPA, and the USFWS are working closely with representatives from the States of Montana and Idaho, the Kootenai Tribe of Idaho, and the Confederated Salish-Kootenai Tribe on the development of an Implementation Protocol that will include biological monitoring and assessment of the sturgeons' biological response to the various flow treatments that are contemplated through implementation of Alternative LVB. While releases up to 35 kcfs out of Libby are expected to achieve the desired attributes in the near term, the flexibility in the 2006 BiOp RPA allows the Corps and BPA to find alternative means to provide for these attributes. The Corps and BPA are currently pursuing habitat actions that may reduce the need for such releases in the future.

2. We acknowledge the benefits of avoiding or minimizing a double peak hydrograph. The construct of the hydroregulation modeling conducted for this EIS incorporates both flood control and fish flow augmentation constraints, which combine in some years of the simulations to create the double-peak hydrograph. This "double peak" is a product of the modeling; however, an objective in real-time management is to shape flows to avoid or minimize double peaking.

3. Please see Response to Comment 1. An objective of the 2006 USFWS RPA and the referenced Implementation Protocol (see Response to Comment 1), is to provide a comprehensive evaluation of various flow treatments and the resultant biological response. The preferred alternative for Libby, LVB, provides the flexibility to optimize water conditions in any given year to support this evaluation. A possible outcome from this approach is that sufficient biological support will be obtained to conclude feasible dam modifications are warranted.

4. Comment noted. We believe the approach described above in Response to Comment 1 endeavors to address the various trade-offs in a scientifically sound and implementable manner.

5. Use of the selective withdrawal system at Libby Dam is described in relevant sections of the EIS, most notably Sections 3.2.3, 3.3.2, 3.4.2, and 3.5.2. Section 3.4.2 (Cumulative Impacts for Water Quality) has been revised to state that thermal dynamics of the reservoir may result in a warmer river during the winter and a cooler river during the spring, even considering dam operations to manage for temperature. Section 3.5.2, Mitigation Measures for Water Quality, has been revised to identify evaluation and possible adjustment of the selective withdrawal system at Libby as a potential mitigation measure for impacts to water quality. The degree that additional modification of the selective withdrawal system at Libby can reduce adverse temperature effects is currently unknown.

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**COMMENTER**

**RESPONSES**

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**WARDELL, JOHN**

[CONT'D]

The expected improvements to the aquatic ecosystem in the S.F. Flathead and Flathead Rivers as a result of implementing selective withdrawal are well documented in CSKT and MFWP (2004), and summarized in the EIS. Since selective withdrawal will remain in place under HV, Reclamation does not foresee any "remaining unnatural, adverse temperature effects" to the aquatic ecosystem. The effects on aquatic life due to temperature are expected to be the same under HV and HS.

6. Comment noted. The Corps and Reclamation will continue working with the Washington Department of Ecology, the Idaho Department of Environmental Quality, and Montana Department of Environmental Quality on Total Daily Maximum Load (TMDL) issues on the Upper Kootenai, Lower Kootenai, Flathead River, Clark Fork, Lake Pend Oreille, Pend Oreille River, and Columbia River.

7. We have revised the EIS to address all pertinent comments, including the selection of a preferred alternative in response to the USFWS 2006 BiOp and RPA addressing the effects of the operation of Libby Dam on listed Kootenai River white sturgeon. The Final EIS represents a comprehensive analysis of effects based on the best information currently available. (Please refer to Responses to Comments 1 and 3).

Enclosure Comments

1. Preferred Alternatives. Comment noted. Please see Response to Letter Comment 1 above.

2. Double-Peak Hydrograph. The Corps and Reclamation are operating Libby and Hungry Horse dams in accordance with our respective decision documents concerning FCRPS operations considered in the NOAA Fisheries 2004 BiOp and the USFWS 2000 BiOp<sup>1</sup>. Accordingly, the flow augmentation provisions for sturgeon and anadromous species downstream of Libby Dam result in the double peak in some years under any of the alternatives. To the extent possible, through real-time management, which includes consideration of recommendations from the Technical Management Team, we will continue to accommodate project operations that avoid and minimize the double peak.

In real-time operations at Hungry Horse, Reclamation attempts to minimize a double peak hydrograph in the Flathead River by targeting refill by late June/early July and scheduling a steady release rate. Constraints based on forecasting, flood control requirements, and avoidance of spill were simulated as closely as possible in the modeling done for the EIS. However, modeling is not as responsive to changing events as real-time operations would be. Reclamation attempts to minimize the double peak even if it means missing refill by some small amount.

The operation of the FCRPS, including the summer flow augmentation operations from the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. Through these discussions, changes in operations may result in reducing the double peak. (See Response to Letter Comment 2.)

3. Alternative LV-2. Please see the Responses to Letter Comments 1 and 3 above.

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<sup>1</sup> As noted, on February 18, 2006, the USFWS issued a new Biological Opinion on the effects of Libby Dam operations on Kootenai River white sturgeon, its designated critical habitat, and bull trout. The Corps has identified a preferred alternative in the Final EIS which is consistent with the RPA contained in the February 2006 USFWS BiOp.

COMMENTER

RESPONSES

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WARDELL, JOHN

[CONT'D]

The EIS evaluates the effects of the increased releases on Lake Kooconusa and various points downstream. Figure 3-12 shows that the likelihood of exceeding the current Bonners Ferry flood stage is the same for all alternatives. To highlight this finding, the LS1 discussion of the Bonners Ferry portion of the Hydrology and Flood Control Section (Section 3.3.1) has been revised to read as follows:

“To the extent possible, Libby Dam outflow is managed to avoid river stages in excess of the current flood stage of 1764 feet elevation at Bonners Ferry, so all alternatives would tend to plateau at 1764 feet. Due to the flood stage constraint, the differences between the alternatives diminish as one moves to the right on the frequency curves toward rarer, lower percent-chance-exceedance events. The likelihood of exceeding the current 1764 foot flood stage is the same for all alternatives. Above flood stage, there would be no differences in frequency of stages between any of the alternatives.”

4. Water Quality-Total Dissolved Gases. With regard to TDG levels associated with Libby Dam operations, the DEIS executive summary and main text are consistent, with more detail provided in the main body of the document. To ensure that no apparent inconsistency occurs between the Executive Summary and the main text of the Final EIS, Table S-3 has been revised to note the number of years the various alternatives exceed 110%, 120%, 125%, and 130% TDG saturation. With the selection of LVB as the preferred alternative in the Final EIS, additional discussion of TDG effects as a result of spill at Libby was incorporated into Sections 3.3.2 (Water Quality), 3.3.3. (Aquatic Life) and 3.3.4 (Sensitive, Threatened and Endangered Species), concerning the Kootenai River. Also, Section 4.3.2 (Water Quality) addresses TDG effects in relation to Hungry Horse operation; differences between alternatives HS and HV are considered to be minor.

We note your support of operations that result in more natural flow regimes and ecosystem benefits while recognizing there may be trade-offs involved. As noted in Response to Letter Comment 4, we believe the preferred alternative for Libby, LVB, providing for a normative hydrograph approach, endeavors to address the various trade-offs in a scientifically sound and implementable manner. HV, the preferred alternative at Hungry Horse, is expected to provide a natural hydrograph, with net benefits to the aquatic ecosystem.

5. Comment noted. As indicated in Response to Letter Comment 1, the Corps, BPA and the USFWS are coordinating with the State of Montana on implementation of the operations in response to the 2006 USFWS BiOp RPA and incorporated in LVB. Under all alternatives, operations of Libby Dam will be managed to minimize TDG generation to the extent possible during spill for flood control purposes. The Corps and Reclamation will continue to coordinate with Montana and downstream States' water quality agencies as appropriate for actions affecting water quality.

6. Concerning water temperatures, Section 3.3.2 has been modified to read: “*There is little information to suggest that intake water temperatures at the Kootenai Tribal hatchery at Bonners Ferry would change noticeably as a result of ~~this~~ any alternative.*” Recognizing that available water temperatures in the reservoir may limit the ability to achieve optimal release temperatures, the Corps would continue to pursue temperature optimization from Libby Dam for burbot in winter (seeking near-freezing temperatures for spawning) and for sturgeon in spring (seeking warmer temperatures in May to aid migration and spawning). In that context, the Corps would continue to adjust the selective withdrawal gates to ensure best access to desired temperatures in water to be withdrawn.

The existing environment sections of Chapters 3 and 4 summarize the current temperature regime in the Kootenai and Flathead rivers and provide context for how current temperatures relate to unregulated conditions and effects on aquatic organisms. The EIS also evaluates effects of the various alternatives in relation to the no-action alternative. The Final EIS contains revised language in Sec. 3.3.2 (under Lake Kooconusa, and Libby Dam to Kootenay

**COMMENTER**

**RESPONSES**

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**WARDELL, JOHN**

[CONT'D]

Lake near Creston, BC) stating that no alternative operation for Libby Dam can be clearly said to change temperature releases from the dam, although it is possible that lower winter releases under VARQ FC (compared to Standard FC) from Libby may allow more cooling as water progresses downriver during times of cold winter air temperatures. Operations of the selective withdrawal system at both Libby and Hungry Horse dams are independent of the flood control and fish operation alternative and, under any alternative, will continue to be optimized in coordination with interested stakeholders to benefit downstream ecosystem functions. The cumulative impacts relating to altered thermal dynamics of the river downstream of Libby Dam are noted in Section 3.4.

The expected improvements to the aquatic ecosystem in the S.F. Flathead and Flathead Rivers as a result of implementing selective withdrawal are well documented in CSKT and MFWP (2004), and summarized in the EIS. Since selective withdrawal will remain in place under HV, Reclamation does not foresee any "remaining unnatural, adverse temperature effects" to the aquatic ecosystem. The effects on aquatic life due to temperature are expected to be the same under HV and HS.

7. Section 3.3.4 provides a discussion of the potential effects of the alternatives on lower Kootenai River burbot. VARQ FC operations could result in a decrease in flows during the burbot spawning period, with potential benefits for burbot. This section also notes that the various alternatives would not affect release temperatures in December and January, the primary burbot migration and spawning period, since the reservoir tends to be isothermal in the early winter and would be at similar elevations under all alternatives, but lower flows under VARQ alternatives may be more easily cooled by cold winter air temperatures as the water flows downriver.

8. See Response to Letter Comment 6.

9. The appropriate sections of the EIS have been revised accordingly.



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STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

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November 29, 2005

Mr. Dan Lechefskey  
Bureau of Reclamation  
1150 N. Curtis Road, Suite 100  
Boise, Idaho 83706-1234

Re: Upper Columbia Alternative Flood Control & Fish Operations  
Log No: 071102-12-BOR

Dear Mr. Lechefskey;

1 Thank you contacting our department. We have reviewed the materials for the proposed Upper Columbia Alternative Flood Control & Fish Operations included in the Draft Environmental Impact Statement (DEIS) for the Upper Columbia River Basin, Washington. We concur with your proposed determination of Effect as identified on page 395. We believe it is important to initiate Section 106 consultation with the goal of developing a Programmatic Agreement and specific Treatment Plan for these anticipated adverse effects.

2 We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4) and a copy of the monitoring report when available.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.  
State Archaeologist  
(360) 586-3080  
email: [rob.whitlam@dahp.wa.gov](mailto:rob.whitlam@dahp.wa.gov)

cc: Pei-Lin Yu

Appendix O. Comments Received on Upper Columbia Alternative Flood Control and Fish Operations Draft EIS, & Responses

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COMMENTS	RESPONSES
<b>WHITLAM, ROBERT</b>	
Washington Dept. of Archeology and Historic Preservation	<p>1. Comment noted. Bureau of Reclamation and the Corps have been consulting with interested parties, including the Washington Office of Archaeology and Historic Preservation since 2002 and will continue to do so through implementation of this action. In addition, both agencies are involved in developing a system-wide programmatic agreement for the operation of the Federal Columbia River Power System which also covers many of the same potential impacts to historic properties. Reclamation intends to develop a draft Memorandum of Agreement concerning the anticipated effects and proposed mitigation for the impacts of VARQ implementation at Lake Roosevelt and will consult accordingly with interested parties during that development.</p> <p>2. Comment noted. The agencies will forward you relevant correspondence and comments received from all interested parties as part of the consultation. To date, the letter you sent to Reclamation on the draft EIS is the only such correspondence received. A response letter was sent by Reclamation on March 2, 2006.</p>



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**Flathead Lakers:**  
*Working for clean water, a healthy  
ecosystem, and lasting quality of  
life in the Flathead Watershed.*

December 27, 2005

U.S. Army Corps of Engineers  
Seattle District  
Attn: Mr. Evan R. Lewis, PM-PL-ER  
PO Box 3755  
Seattle, WA 98124-3755

Re: Comments on the November, 2005 Draft Environmental Impact Statement for the Upper Columbia Alternative Flood Control and Fish Operations

Dear Mr. Lewis:

The Flathead Lakers support the U.S. Army Corps of Engineers and Bureau of Reclamation preferred alternative for interim alternative flood control operations at Hungry Horse Dam because of its benefits to the Flathead River and threatened fish species downstream from the dam, and its benefits to achieving and maintaining summer recreational lake levels in Flathead Lake.

The Flathead Lakers is a nonprofit, grassroots organization working for clean water, healthy ecosystems and lasting quality of life in the Flathead Watershed. The Flathead Lakers was founded in 1958 and currently has over 1,000 members.

1 We are pleased to see the federal agencies taking a broader look at basin-wide impacts, including giving more attention to headwaters areas such as the Flathead River. We favor dam operations that naturalize flows as much as possible to protect resident, upper basin fish. Recent scientific information indicates that there is little or no evidence that water released at Hungry Horse Dam is measureable downstream and actually benefits anadromous fish in the mainstem Columbia River.

We are, however, disappointed to learn that the proposed dam operations will not provide benefits to the Flathead River and Lake system during the most severe droughts.

2 The established minimum flow in the Flathead River mainstem at Columbia Falls is 3.5 kcfs. The DEIS includes a sliding scale for bull trout flows that decreases flows from 3.5 to 3.2, then down to 3 kcfs in the driest years. We support the Montana Fish, Wildlife & Parks (MFWP) recommendation that the sliding scale be changed to a minimum of 3.2 kcfs in the lowest 20th percentile water supply, but only with concurrence from MFWP. The bull trout minimum flow should be set at 4.5 to 5.0 kcfs during average and higher water years and 3.5 during drought, unless further adjustments can be justified for overall system balance with natural resources.

3 We request that the following information in the DEIS be reviewed and corrected. Plots of discharge show a spring freshet followed by a flow reduction, then a second pulse for anadromous fish flow augmentation. According to MFWP, the flows should not have a double peak, but rather a gradual decline from the spring freshet toward a stable flow or gradual declining flow through the end of September.

4 The DEIS shows a slight increase in uncontrolled spill at Hungry Horse Dam and a slightly increased chance of overfill of Flathead Lake. MFWP has indicated this reflects the modeling

4 technique used in the analysis and can be corrected by simply adjusting the refill date based on water supply (later in wet years, earlier in dry years). If this is accomplished, there will be no additional risk of uncontrolled spill or lake overflow.

5 The Flathead Lakers have for many years strongly encouraged a Flathead Watershed perspective regarding dam operations and flow management within the watershed. In our previous comments (letter dated December 13, 2002 on the November, 2002 Draft Environmental Assessment) we encouraged the Army Corps of Engineers and Bureau of Reclamation to include measures in the Hungry Horse Dam operations plan to improve coordination between Hungry Horse and Kerr Dams. We see no evidence that this recommendation has been considered in the DEIS and we urge you to revisit this opportunity. We do appreciate the discussion in the DEIS about Flathead Lake recreation benefits and how they will be affected by the new plan as well as the reference to the drought management plan being developed by the Bureau of Indian Affairs for Kerr Dam and Flathead Lake.

6 The Flathead Lakers continue to believe there are opportunities (as well as historic precedent) for water from the South Fork of the Flathead River to be used to help maintain recreational lake levels (which we define as 2892.5) in Flathead Lake during the summer during severe droughts. We continue to encourage the Army Corps of Engineers to work with the Bureau of Reclamation and the Bureau of Indian Affairs and other agencies to evaluate these opportunities and consider how water releases from Hungry Horse Dam during severe drought conditions can help maintain recreational lake levels at Flathead Lake and minimum flows in the lower Flathead River below Kerr Dam while taking into consideration needed flows for bull trout below Hungry Horse Dam. We believe operating closer to the upper flood control rule curves would benefit fish in the reservoirs, rivers downstream and Flathead Lake levels during severe droughts.

Thank you for the opportunity to comment.

Sincerely,



Paul Williams  
President

*by R.L.S.*

**COMMENTER**

**RESPONSES**

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**WILLIAMS, PAUL**

Flathead Lakers

1. Thank you. Comment noted.

2. Table 1-1 on page 8 of the DEIS is incorrect and has been corrected for the Final EIS. The correct minimum flow table is located on page H-5 of Appendix H. The simulation modeling completed for the EIS reflects real-time operations for bull trout minimum flows. These flows were established in the December 2000 USFW Biological Opinion with the absolute minimum flow at Columbia Falls being 3.2 kcfs for the driest of years.

3. To the extent possible, real-time management of the both Hungry Horse and Libby dams, which includes consideration of recommendations from the Technical Management Team, will continue to accommodate project operations that avoid and minimize the double peak.

In real-time operations at Hungry Horse, Reclamation attempts to minimize a double peak hydrograph in the Flathead River by targeting refill by late June/early July and scheduling a steady outflow rate. Constraints based on forecasting, flood control requirements, and avoidance of spill were mimicked as closely as possible in the simulation modeling done for the EIS. But the modeling would not be as reactive to changing events as real-time operations would be. Reclamation attempts to minimize the double peak even if it means missing refill by some small amount.

The operation of the FCRPS, including the summer flow augmentation operations from both the Libby and Hungry Horse projects, is being discussed in the collaborative remand process ordered by Judge Redden, U.S. District of Oregon. Through these discussions, changes in operations may result.

4. Modeling rules were consistently applied to all the alternatives. During refill, the objective was to reach full pool at Libby and Hungry Horse as soon as possible without spilling, rather than simply trying to be full by June 30th. The refill rate was controlled by keeping track of the residual inflow forecast and comparing this with available reservoir space. If the reservoir was filling too fast, outflow from Libby would be increased to preserve some flood control space. Conceptually, this refill control is similar to using a sliding refill date. However, in the modeling there was no rule to accept a higher risk of not filling the last few feet. Had it been conducted this way, the commenter is correct in saying uncontrolled spill would likely decrease. (This could be true for all alternatives, not just VARQ.) In real time, reservoir regulators have better information for managing the final filling of a project than can be simulated with a model.

5. Maintaining usable lake levels for recreation on Flathead Lake is outside the scope of this EIS. Reclamation has coordinated Hungry Horse operations with PPL Montana and others through a variety of forums, and will continue to do so. These include project operation coordination calls that occur at least monthly and usually more frequently during critical times of the year with other agencies, including the Corps.

The appropriate avenue for Flathead Lake management concerns is the EIS process taking place for Flathead Lake drought management, with the Bureau of Indian Affairs as the lead agency. Reclamation is also a cooperating agency in the development of the Flathead Lake Drought Management Plan. This process is expected to continue until the final Drought Management Plan is adopted for Flathead Lake.

6. Operation to assure higher refill levels at Flathead Lake is outside the scope of this EIS. The implementation of VARQ will not help refill at Flathead Lake during severe drought conditions nor will it hurt flows into Flathead Lake compared to the previous Standard Flood Control plan. Reclamation has worked with interested parties to improve conditions at Flathead Lake during severe drought conditions. For example during the severe drought of 2001, Reclamation worked with PPL Montana, NOAA Fisheries, the State of Montana and others to shape salmon augmentation flows from Hungry Horse during the summer to limit the impact on summer Flathead Lake levels and flows below Flathead Lake.

Gary Wright, Central Kootenay Regional District  
Draft EIS Public Meeting, Nov 28, 2005, Nelson, BC  
(transcript)

GARY WRIGHT: I'm immediately bashful to be here with these technically-informed people. I'm certainly not one of them. As Chair of Central Kootenay Regional District, I represent pretty well most of the people in this area. It's an area of 23,000 square kilometres, and our particular interest is Kootenay Lake, Duncan Lake, Kootenay River to the confluence of the Columbia.

1

The issues we have environmentally are probably very different than the people in Montana and the people in Kookanusa, and so as you look at your review, I know you've tried really hard to balance all this and it's kind of a juggling act, it's very difficult. But some of the issues we have, as you address issues in Libby and Kookanusa, of course, would be lake levels at Kootenay Lake. You know, the other speakers I'm sure will technically have much more to say about that than I do, but it is an issue for us. And as I look at the charts I've seen here as a lay person, it seems to me of course we've increased the risk of potential flooding a great deal under VARQ, and I wonder if that's true. And again, depending on what level of that I could go with, it would be something of concern to us.

2

Again, as a lay person, my question might be answered with a different presentation in the final report that was something that was a little more user friendly to most of us up here in Canada. I notice in the U.S., and this might be a cultural thing, but the American Constitution is very simple and you have a very complex report. In Canada we have a very complex Constitution that no regular person understands, but when it comes to doing a project in a public area, we make it very simple for people like me so that we can see what the potential impacts might be and express our concerns more reasonably.

3

Also, I was wondering what the social and economic impact part of the IJC might be, because I'm not aware, as an elected official, any other place I can address this other than this forum, and so I will, and I thank you for that.

4

One of the things I'm not sure about is the economic impacts which for us translate to social and environmental impacts has to do with water flows and power generation coming out of B.C. Hydro and organizations like Columbia Basin Trust, Columbia Power Corporation whose income we also use for economic development programmes, social and environmental programmes, and I imagine there's some impact with that. How we address that, I've heard other speakers already talk in the question period about the need to do that and I think you mentioned that too, Jeff, we have to watch that.

5

I would hope that as you go through the process that there would be a way of responding to impacts in Canada and in this Regional District much faster than every five years or 10 years. And I would hope that there's some format set up so that we could do that without going to Court and we can talk to each other about it. I think there probably is, but perhaps that might be something you look at, and if you hadn't looked at it already, if you can inform our Regional District of what those processes are and who is involved, how we participate in those or if indeed we do. Thank you.

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**COMMENTER**

**RESPONSES**

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**WRIGHT, GARY**

Central Kootenay  
Regional District

Draft EIS Public  
Meeting, Nov 28,  
2005, Nelson BC  
(transcript)

1. We have updated the EIS based on recent information we received from BC Hydro concerning flood level impacts. Although the likelihood of exceeding a Kootenay Lake level of 1755 feet does not change among alternatives, the fish flows and VARQ FC do increase the likelihood of lake levels between 1750 feet and 1755 feet, which the recent information from BC Hydro indicates results in flooding impacts.

2. Comment noted. We agree that the EIS is lengthy and includes complex technical information; however, we have endeavored to keep it understandable and accessible. The nature of the consequences of the alternatives and the geographic scale over which they occur make it difficult to simplify without overlooking important information. We suggest the reader refer to the Executive Summary and Chapter 2 of the Final EIS for a more succinct summation of the analysis.

3. Libby Dam operations are subject to the International Joint Commission's (IJC) Order of 1938. The Kootenay Lake Board of Control typically holds an annual board meeting and a public meeting in September. Announcement of the public meeting of the IJC is advertised in local newspapers on both sides of the border. The annual meetings alternate between Canada and the United States and are held either at Nelson, British Columbia or Bonners Ferry, Idaho. The board meetings are attended only by the Board of Control, a representative of the operator of Corra Linn Dam, and other public officials having an interest in Kootenay Lake operation. The public meetings are open to the general public and any public officials who care to attend. The minutes of the both the Board and Public meetings are posted on the International Joint Commission website: <http://www.ijc.org/>. Interested officials in Canada should coordinate with BC Hydro for further information.

4. For transboundary impacts (i.e. those in Canada, which would include secondary impacts from changes in revenue/income from power generation), we rely on existing information or information supplied by affected stakeholders for impact evaluation. BC Hydro has provided estimates of changes in hydropower benefits resulting from the various alternatives, and we have incorporated the information we received from BC Hydro concerning effects of the alternatives on hydropower benefits in the Final EIS.

5. Concerning your comment on potential improvements in coordination with the general public in Canada, we are investigating ways to invite public participation and education on Libby Dam issues of potential interest in Canada. Formal processes for coordination are in place, including those under the Libby Coordination Agreement and transboundary groups, such as the Kootenay Lake Board of Control, the Columbia River Treaty Operating Committee, and the Kootenai River White Sturgeon Recovery Team. Additionally, Corps water managers maintain regular contact with their counterparts in British Columbia for real-time operation of the Columbia River system.