Closing Argument

[Before the PCHB on May 16, 2013: Andrea Rodgers Harris on behalf of Center for Environmental Law & Policy, American Whitewater, Columbia River Bioregional Education Program, North Cascades Conservation Council, and Sierra Club - all members of the Hydropower Reform Coalition.]

What this case is about: Whether Ecology had reasonable assurance that the 10/30 cfs minimum flow requirement would meet the aesthetic water quality standards.

Reasonable assurance requires Ecology to gather information and conduct appropriate analysis to ensure the Project will comply with water quality standards.

It is not Ecology's job to make sure that this Project happens. It is not Ecology's job to condition a project in a way that is economically feasible. In fact, if Ecology determines that the Project would violate water quality standards, it has a legal obligation to deny the water quality certification, not write a certification that will make it work. We get this principle from the Dosewallups decision.

This case is also not just about Appellants demanding a focus group study, nor do Appellants assert that such a study is always required for compliance with the aesthetic water quality standard. Appellants simply ask for a flow that protects aesthetic uses – how that evaluation is done is not the key point. One purpose of Dr. Whittaker's testimony was to show that it CAN be done, even when river flows cannot be controlled.

(1) Ecology improperly relied upon alleged Economic constraints provided by the District in deciding to not evaluate a reasonable range of aesthetic flows.

-Flows above 10/30 cfs were not evaluated not because of any indication that they would harm fish by increasing temperatures in the bypass reach, but because the District claimed flows above 100 cfs would make the project uneconomical.

-Email from Brad Caldwell indicating that the PUD refused to do instream flow studies not because they were impossible or that increased flows would harm fish, but because they believed the results would require flows of 100-150 cfs and that would make the project uneconomical. A43
-Another email from Brad Caldwell showing that the PUD threatened that flows above 100 cfs would kill the project. R86
-Brad Caldwell also testified that the economic information from the District guided the range of flows that Ecology analyzed.
-There is also evidence that shows that the only information that Ecology gathered on flows other than 10 and 30 cfs is economic information provided by the District. A118: At Ecology's request, the District provided information on how much it could cost the District to provide different minimum flows in the bypass reach. There is no other analysis for these flows.

-There is no analysis of what flows would look like at 50, 100 or 200 cfs.
-There is no evidence to suggest that flows of 50, 100 or 200 cfs would spill out of the deep, incised channels to cause the temperature problem.

(2) Ecology's attempt to "balance" allegedly conflicting uses is inherently flawed because it is based upon the false conflict between aesthetic flows and temperature.

The Enloe dam and reservoir, as currently exist, do not violate water quality standards for temperature set forth in WAC 173-201A-200 which determines compliance with temperature by compliance with the 7-DADMax.

The PUD's 2006 data collection effort demonstrated that the project complies with the 7-day average daily maximum criterion throughout the summer season, even when flows fall as low as 236 cfs. R191: QUOTE.

Although Mr. Good testified that instantaneous temperatures rose through the project during part of that summer, temperatures did not violate water quality standards since the relevant data is the 7-DADMax. Notably, none of this data was presented as evidence. In addition, the alleged increases in temperature were never correlated to flow. Mr. Good testified that he did not know why the increase occurred and that to know that information he would need to look at the meterological data, which he did not.

- instantaneous temperature is not the standard used to evaluate conflicts between temperature and aesthetic flows.
- And to evaluate whether there is reasonable assurance that the project will meet water quality standards

The PUD also modeled flows of 10 and 30 cfs, and determined that those flows would comply with water quality standards. -Mr. Caldwell testified that he relied upon the District's temperature modeling of the 10/30 flows. (Testimony p. 129:1-4).

Although Caldwell and others testified that temperatures would increase through the bypass at flow rates higher than 30 cfs, there is no evidence actually showing that temperatures will increase:

- no modeling data of flows above 30 cfs has been presented as evidence;
- there is no data as to when flows will spill out of the deep, incised channels;
- there are no measurements to understand surface area, velocity, residence time, or temperature gain in the bypass channel;
- and we do know that once flows get to 236, water quality standards, including the 7DAD-Max temperature standard, are met.

-Mr. Reub testified that low flows stay within the 2-3 deep, incised channels in the bypass reach and that flows do not spread out until at moderate levels. But no one

seems to know at what point the flow will begin to spill out of the deep incised channels. The Bunn memo tells us that flows of 120 cfs are confined to the channel. Mr. Reub testified that it would be close to 200 cfs before the water spills out of the deep, incised channels. Mr. Pippin testified it could be as high as 240 cfs.

-What we do know is that Mr. Caldwell testified that because the middle channel is a U-shaped channel, the width of the water at 335 cfs would not be much more wider than the water at 30 cfs. If that is true, how can it also be true that flows above 30 cfs will spill out of the deep incised channels to such an extent that it would heat up by 4.6-7 degrees C, the amount of heat increase needed to increase the downriver temperature by 0.3 degrees C. R134 (Pippin Technical Memo). Mr. Good testified that it is hard to imagine under what scenario fast flow in a 370 feet bypass reach could be heated to such a great extent. He testified that flows likely couldn't increase more than 3 degrees when traveling through the bypass reach.

-We heard evidence about the importance of surface area in terms of heating in the bypass reach. But the fact that velocity increases as the flow increases cannot be ignored. Brad Caldwell testified that the velocities in the bypass reach are extremely fast. (Day 4, p. 703). Evidence in the record characterized even flows as low as 10 and 30 cfs as having a rapid flush times. We heard testimony from the District's temperature experts that this decreases residence time in the bypass reach which therefore reduces the ability of the sun or hot rocks to heat the water.

Respondents' thesis -- that aesthetic flows conflict with temperatures – is unsupported by the data that the PUD itself applies.

We ask nothing more than that the Board utilize the PUD's own data – and find that it is unknown to what extent flows between 30 and 236 cfs would affect temperature, and that flows above 236 cfs would not affect temperature.

Because it is not known what flows above 30 cfs will satisfy aesthetic criteria, the Board must reject the notion that temperature increases are a barrier to increased flows for aesthetics.

This leads to an important point:

- Ecology could have imposed adaptive management conditions on the 401 Certification to assess aesthetics;
- Adaptive management could be used to measure the bypass reach;
- Adaptive management could be used to determine what temperature impacts occur when water spills out of the bypass channel onto the bedrock shelves.
- Adaptive management could be used to find the appropriate mix between bypassing water over the crest gates versus through the pipe at the base of the dam

- Ecology could also use adaptive management to determine what the flows actually look like at 30, 100, 200, or 400 cfs.
- Mr. Reub testified that he could not tell why starting at 100 cfs to start would not work.

It is a false dichotomy to suggest that aesthetic flows will cause temperature increases.

- According to the PUD, the dam and reservoir as currently configured is meeting water quality standards.
- Changes to temperature as a result of the new hydro project means the project does not meet standards.
- It is wrong to suggest that flows to meet aesthetic criteria would be to blame for temperature violations.

(3) Ecology's Aesthetics Analysis is Flawed and Unreasonable

Ecology asks this Board to defer to Mr. Caldwell's sole judgment that the 10/30 cfs flow requirement will comply with the aesthetic water quality standard. However, Mr. Caldwell's judgment does not constitute reasonable assurance with the state water quality standards for aesthetics.

We heard testimony from Appellants' expert Dr. Whittaker in regards to how an aesthetic flow study could and should have been conducted for the Enloe Project. This testimony is significant because Ecology's own guidance manual cites the work of Dr. Whittaker when discussing how to analyze aesthetic and recreation flows. Dr. Whittaker opined that the elimination of the waterfall over the Dam and the 10/30 cfs flow requirement is insufficient to protect aesthetic values at the site.

(A) Lack of measurement data

-Mr. Caldwell claims that data collection in the bypass reach was impossible. Dr. Whittaker provided extensive testimony illustrating how one could collect the data that would be needed for a proper aesthetic flow analysis. We saw photographs of some of the measurements being taken. A138, A139, A145.

-In spite of Mr. Caldwell's assertions regarding the impossibility of data collection, some measurement data for the bypass reach exists.

-First, there is the Bunn memo that the District had prepared in 2008. R30. This memo contains the cross-section that Mr. Caldwell wanted to create. It is undisputed that this document was not provided to Ecology during the development of the 401 Certification. This is an important omission not only because of the cross-section, but because it is the only document that contains information regarding depth, which we have learned is important in regards to temperature. The Bunn memo shows flows as high as 120 cfs stay confined to the deep incised channels.

-Second, Fleece and Miller Habitat Summary Sheet. Again, the District did not provide Mr. Caldwell with the photographs and graphical depiction of the measurements in the bypass reach conducted by Fleece and Miller at the lowest flow seen in years. This information was critical since Mr. Caldwell was confused by what Fleece and Miller were calling the run v. the shoot.

-Fleece and Miller estimate of main center channel: 10 feet at 238 cfs, which we see depicted as an extremely narrow waterfall. These photographs (A54) are important because we heard testimony that 30 cfs would be 87 percent less flow than the low flow depicted in these photographs.

-Third, Caldwell's own estimates. Mr. Caldwell testified it was unusual that he go out to the site and collect measurement data himself because usually the hydroelectric project proponent gathers this information and provides it to Ecology. (Day 4, p. 26)

-Main channel: Caldwell testified it will be 17 feet wide at 550 and 605 cfs. Testimony p. 724:23-25

-Estimated main channel at 6 feet deep at 549 cfs. Testimony p. 794:17-18.

-Estimated main channel to be about 15 feet wide at 335 cfs. Testimony p. 741:19. We didn't hear about any depth measurements at this flow.

-Estimated main channel to be about 10-12 feet at 30 cfs. Testimony p. 742:25. This is an interesting estimate because Mr. Caldwell is estimating that the main channel would be the same width at 30 cfs as Fleece and Miller estimated the width to be at 238 cfs, which is 87 percent more flow.

-Mr. Caldwell did not measure the width, depth or velocity of either of the two side channels, even though this information would have been helpful in evaluating what lower flows would look like coming over Similkameen Falls. Testimony p. 793-94. Mr. Gangemi testified that this information would have been extremely helpful when trying to visualize what 10 and 30 cfs would look like passing over the Falls.

-Mr. Caldwell's assumption that a 30 cfs waterfall would be a similar width as a 300 cfs waterfall is based upon yet another assumption that the main channel of the waterfall is a U-shaped channel that is almost straight down on either side. Testimony p. 736-37. This information is significant because Mr. Caldwell says that with a U-shaped channel, lower flows will not change significantly in width. But again, no measurements were made to confirm Mr. Caldwell's assumption that the channel is U-shaped.

-Mr. Caldwell testified that his aesthetic analysis consisted of him visualizing where water will go and what it will look like at low flows. Testimony p. 740:16-19.

-Mr. Caldwell's visualization technique is in stark contrast to how he recommends instream flows for fish. He testified that fish preferences for flows are a critical component of any instream flow study for fish. (Testimony p. 787:7-10)

-Mr. Caldwell did this visualization exercise even though he testified that there was nothing preventing him from gathering photographs of different natural low flows, comparing them and providing them to interested stakeholders to get a sense of what flows stakeholders would find aesthetically pleasing. Again, the only reason he did not do this was because the District said that flows above 100 cfs in the bypass reach would economically challenge the Project.

-The evidence shows that Mr. Caldwell actually knows very little about what the waterfall will look like at 10 and 30 cfs.

-He testified that it was unknown whether channels other than the main channel would be wetted at 30 cfs. Testimony p. 741:3-5. Had the District provided Mr. Caldwell with the drawing that accompanies the Fleece and Miller Habitat Summary Sheet, he would see that the river right channel was dry at 236 cfs and presumably will be dry at even lower flows.

-Mr. Caldwell initially testified that a 30 cfs waterfall would look the same as a 335 and 236 cfs waterfall (Testimony p. 742:16-17), but later backtracked and admitted that the wetted width would be more narrow at 30 cfs. Testimony p. 769:5-7.

-Mr. Caldwell testified that the main aesthetic criteria are wetted width and the square footage of whitewater. Testimony p. 783:20-7. But he testified he does not know what the wetted width or square footage will be for a 10 or 30 cfs waterfall. (Testimony p. 803:3).

Respondents have repeatedly directed witnesses to both sides' expert's 2005 Flows and Recreation Study. R53. This talks about the Level 1 analysis or desktop analysis.

-Undisputed that Dr. Beecher performed a desktop analysis that recommended 465 cfs. That number was quickly discarded and not analyzed in any way.

-Mr. Caldwell did some Level 1 work (hydrology analyses and probably some literature review, but skipped other critical Level 1 work. Most notably, Ecology did not conduct structured interviews with stakeholders about their evaluations of different aesthetic flows to get "sign off" that their concerns were being addressed. This is a significant omission because the evidence suggest that stakeholders were insistent on not only more information about aesthetic/recreation flows, but that there be a formal aesthetics/recreation flow study.

-Stakeholder requests for aesthetics analysis submitted in 2008, 2010, 2011 and 2012. A3, A30, A52, A66, A105, A108, A111, A112, A113, R51.

-The letters show that waterfalls are natural resources that have aesthetic and recreational values that these stakeholders believe should be protected.

-Dr. Whittaker and Dr. Gangemi provided testimony that when analyzing impacts to criteria such as aesthetics and recreation, stakeholder input is critical. This is also recognized in Ecology's guidance manual. R78.

-These letters illustrate that the District is incorrect in asserting that there was some kind of global stakeholder agreement supporting the fallacy that aesthetics should be sacrificed to protect fish.

Looking more closely at R53 page 13, the decision to go on to Level 2 (or further) rests on four questions, none of which Ecology addressed

1. Are there flow-dependent opportunities? Dr. Whittaker says there are. Viewing falls is a flow-dependent sight seeing activity since the dam falls disappears with 0 flows, and Similkameen Falls loses key forms (segmented nature), wetted width, sound, power, mist.
2. Are flow dependent opportunities affected by Project? The District recognizes that the answer to this question in its aesthetics analysis Ms. Demuth testified about which identifies reduced flow in the bypass reach as a project effect.
3. Are those flow dependent opportunities "important" relative to other resources or foregone power generation. The answer is yes because the flow-dependent opportunities are protected by the aesthetic water quality standards.
4. Does Level 1 (or Level 2) information precisely define flow ranges and project effects? No. No flow range was analyzed for purposes of aesthetics (10/30 flow was the only one discussed in regards to aesthetics and temperature), and no analysis of actual anticipated project effects since no simulations were created. Exhibit R16 identifies two ways in which simulations could be done using a photograph of 400 cfs.

Therefore, Ecology's aesthetic "analysis" was flawed and unreasonable, and is not entitled to deference by the Board.

(4) Ecology failed to account for the Project area's high recreation value and potential.

-Appellants witnesses Geraldine Gillespie and Joseph Enzensperger provided testimony about the special recreational and cultural value of this place.

-Ms. Gillespie took you on a visual walking tour of the newly opened Similkameen River trail. A69
-This trail opened in 2011, after all of the District's recreational use studies and after Ecology and the District agreed to the 10/30 cfs minimum instream flow requirement. Ecology made no efforts to ascertain whether the opening of this trail should affect its determination to eliminate the waterfall over the dam and substantially dewater (by 87% of existing low flows) Similkameen Falls.

-You heard evidence that BLM characterized the view of the waterfalls from the viewpoint at the end of the trail as "spectacular." R88.
- Plans to expand the trail as part of the Pacific Northwest National Scenic Trail, which will increase the recreational opportunities associated with this place. BLM, NPS: increase in visitor use. A30.
-Joseph Enzensperger described his recreational use of the site and how that use is impacted by flows over the Dam and Similkameen Falls.
- Dr. Whittaker: Flows over waterfalls are an important factor in regards to the recreational value of a waterfall.

-Mr. Enzensperger also showed you several views of the waterfalls at a wide variety of flows. This confirms it is possible to put together a visual representation of what the waterfalls look like at different existing natural low flows, something that neither the District or Ecology ever did. These photographs illustrate that the sound and power of a waterfall are important aesthetic attributes that should be considered in any reasonable aesthetic analysis.
-The site may be remote from the cities of Seattle and Spokane, but it is still used and valued and it is not entitled to less protection under the state water quality standards.

-Pat Irle spoke to the irony present in this case: the District is making recreational improvements, but these improvements will allow people to view a nearly dry waterfall, which negates any recreational benefits of the Project.

(5) Ecology unreasonably ignored the connection between recreation and the aesthetics of flows over the Falls.
-Ecology testified that it relied upon the recreation information produced by the District when developing the 10/30 instream flow requirement.
-Mr. Caldwell testified about what he believed the recreation benefits of the project will be (road improvement, boat launch, etc.) but what he did not testify about is how recreational uses such as sight seeing will be affected by substantially reducing flows for 8-9 months in a year.
-Evidence was also presented that Ecology considered flow over the dam to have recreational value, but there is no information in regards to how

eliminating flow over the dam and substantially reducing flows over the Falls will impact that recreational use, let alone how the 10/30 cfs flow requirement will protect and maintain that use. R81.
-There is simply no data to make any kind of reasoned determination in regards to whether the 10/30 cfs flow requirement would suffice to protect the recreational values at the site.

The Lake Chelan case is very different from the one at bar. In that case, there was an existing dam that had been operating for 75 years. It thus predated the Clean Water Act and the Board found that cold water fisheries were not a protected existing use. At Enloe on the other hand, all water quality standards apply. The conflict in the Enloe case was temperature for fish v. habitat for fish. Here, there is no such conflict. In Lake Chelan, the Board said that the case was limited and unique. There was conclusive evidence that increasing flows decreased fish habitat. Here you have the situation the Board specifically said was not in issue in the Lake Chelan case: it is possible to create a flow regime that also complies with the temperature water quality standard. It is just no 10/30 cfs.

CONCLUSION

The 401 Certification is a mandatory component of hydropower licensing. Instream flows to protect designated uses are an element of the 401 certification conditions. If Ecology does not have reasonable assurance that a project can protect water quality standards, including aesthetics, then the 401 certification must be denied.

This is precisely what happened with respect to the Elkhorn project on the Dsewallips River. The inability of the project to maintain bypass flows sufficient to protect designated uses for fisheries resulted in a denial of the 401 certification for the project.

In that case, the economics of the bypass requirements were not relevant to whether water quality standards could be met.

Here, the bypass flow condition of 10/30 cfs is based – improperly - on economic considerations, not Clean Water Act requirements. The idea that aesthetic flows must be sacrificed for to maintain temperature is misleading and wrong.

The PUD's own evidence shows that state temperature criteria will be met at every flow that has been studied or modeled. The assertion that temperatures in the Similkameen River will exceed water quality standards due to aesthetics flows (which are not even determined) is completely contradicted by the PUD's own data and modeling.

The Board should revoke the 401 Certification and remand to the Department of Ecology to conduct appropriate data collection and modeling, and to ensure that all

elements of water quality standards are met to promote the overall purposes of the Clean Water Act.