

Commenter	Topic	Comment	Response
Childers	Structural Integrity	<p><i>The Environmental Assessment (EA) states on page eight; "The LWM structures in Stormy A and Upper Stillwaters reaches were designed to remain stable at a 100-year flow event. LW structure design also followed the guidelines provided in the US Bureau of Reclamations Large Woody Material Risk Based Design Guidelines, therefore the occurrence of logjams breaking apart is considered unlikely."...</i></p> <p>Despite being designed to withstand a 100 year flood event, studies show that over time LWM structures can and will fail; therefore, they are likely to break apart over time...</p> <p>It is very difficult to predict how these structure will hold up over time--<u>the predictability or certainty factor for this type of structure is very low...</u></p> <p>Consequently, some <u>uncertainty exists in the performance of wood structures from the perspective of the structural integrity of the structure itself.</u>"...</p>	<p>Agreed. This statement of the EA was edited to read "...therefore the occurrence of the logjams breaking apart is considered unlikely <i>within the life span of the structure which has been determined to be approximately 25 to 50 years</i>".</p> <p>Large wood will deteriorate with time, however, LW structures within the Entiat River are designed to withstand a 100 year flood event and are intended to remain in place for 25-50 years (personal communication email from NSD engineer R. Embertson; personal communication with Chris Clemons from Yakama Nation). Scientific literature suggests that many factors determine longevity of large wood in streams including; tree species and size, site conditions, stream channel stability, morphology, etc. In general, large conifer trees, decompose slowly (decay, fragmentation, fluvial transport) and can remain in streams and rivers from 70 to 100 years.</p> <p>As stated in the EA under design criteria... "All logs for structures would be Douglas fir and/or western red cedar" (pg 15, 25). Logs would be between 12 and 24 inches diameter at breast height (DBH) (pg 15; Design Plans in <i>Appendix B</i>).</p> <p>No cable will be used to ballast the large wood structures. In riprap enhancement areas large wood is attached to boulders via threaded rod. As log jams and riprap structures slowly decompose, woody material will move through the system in a typical manner to a natural piece of large wood.</p> <p>Both the Yakama Nation and the Bonneville Power Administration (the project proponents) have an operation and monitoring plan in place to make sure that the LW structures function as intended. If structures have issues, a contractor is in place to repair log structures as needed.</p>

Childers	Structural Integrity	<p>The <i>Large Wood and Log Jams</i> study (referenced above) states that, "<u>LW addition, as with any in-stream restoration work, is not recommended in unstable watersheds subject to material flows.</u> Where unstable watersheds exist, restoration work should focus primarily on watershed restoration and hill slope stabilization."</p>	<p>The referenced citation is a generalized paraphrase from the larger British Columbia Watershed Restoration Program Circular (Slaney, P. A. and D. Zaldokas editors. 1997. Fish Habitat Rehabilitation Procedures. Watershed Restoration Technical Circular No. 9. British Columbia Watershed Restoration Program.) The Circular suggests hillslope stabilization before instream work, but does not preclude beneficial habitat restoration prior to or simultaneously with upslope treatments.</p> <p>The Forest Service has and is, proceeding with restoration projects throughout the Entiat watershed. Previous projects include decommissioning and hydrologically closing of roads through BAER efforts, other road related decommissioning projects in the Tillicum Creek Watershed, thinning and burning within the Preston Creek, Mud Creek, Potato Creek and Tyee areas.</p> <p>Some lower order tributaries in the Entiat watershed are subject to material flows and related channel scouring, and they deliver material to the 4th order Entiat Valley resulting in the development of both active and inactive alluvial fans. Neither the Stillwater, nor the Stormy A sites are subject to the direct impacts of such scouring material flows.</p> <p>It should also be noted that elements of the project were designed by licensed engineers to withstand a 100 year flood event with an appropriate factor of safety. A subsequent risk analysis was performed by licensed engineers at the request of the Forest Service to address the potential impacts of the 2015 fires and is included in <i>Appendices C and D</i>. These analysis provide a reasonable assurance that project structures would withstand anticipated events.</p>
Childers	Structural Integrity	<p>The <i>Large Woody Material--Risk Based Design Guidelines</i> specify that a <u>written risk assessment</u> should be done when designing LWD projects. As a part of this EA, a written risk assessment should be done by the engineering company preparing the plans for this project. The assessment should</p>	<p>All elements of the project were designed and stamped by licensed engineers to withstand a 100 year flood event with an appropriate factor of safety. A subsequent risk analysis was performed by licensed engineers at the request of the</p>

		include; the design life of the LWD structures, the predictability factor of the designs, potential impact of catastrophic flooding and design methodology. Also, the assessment should be <u>signed by the PE</u> preparing the assessment and <u>stamped with his PE stamp</u> .	Forest Service to address the potential impacts of the 2015 fires and is included in <i>Appendices C and D</i> .
Craven		Securing foreign logs and stumps so they don't float away during a good old Entiat Valley disaster will be problematic, There's a one in five chance, according to a couple studies done in Washington and Oregon, they won't survive even the normal cycles over a five to ten year period, let alone a major water event. Also, if these LWDs will hold spawning fish in a nice calm shelter, they'll hold a lot of other stuff, and stuff behind that, and stuff behind that.....	<p>Individual project LWM structures are anchored with a variety of methods depending on the particulars of the structure. Anchoring methods range from pinning structure elements to boulder ballast, pinning structure elements to vertical and angled driven piles, or embedding structure elements in banks to prevent movement.</p> <p>All elements of the project were designed and stamped by licensed engineers to withstand a 100 year flood event with an appropriate factor of safety. A subsequent risk analysis was performed by licensed engineers at the request of the Forest Service to address the potential impacts of the 2015 fires and is included in <i>Appendices C and D</i>.</p> <p>Individual structures, depending on their location and purpose are designed to either deflect material delivered from above through the use of bumper logs etc., or designed to rack material delivered from above.</p>
Wick	Structural Integrity	There is probably a concern about down river damage if logs were to escape their material pile. It appears that the logs will be done in such a way that they will not create a danger for recreational float trips.	<p>Large wood will deteriorate with time, however, LW structures within the Entiat River are designed to withstand a 100 year flood event and are intended to remain in place for 25-50 years.</p> <p>As mentioned in the EA (p. 43):</p> <p>The safety of river-users and the quality of their recreation experience could be compromised if the structures capture free-floating logs, increasing the size of the structures, and potentially spanning the river. The structures in the Upper Stillwaters reach would be designed to shed floating logs by placement of "bumper logs" at the upstream end of the structures. These bumper logs are designed to</p>

			<p>deflect floating logs away from the structure, back into the fast moving water in the center of the river. In the unlikely event that channel-spanning logs were collected on the structures, it would directly alter the navigation of the river by people in canoes, kayaks, or rafts. People would need to exit the river, walk along the riverbank around the channel-spanning logs, and re-enter the river on the down-river side of the blockage.</p>
Craven	Project Justification/ Benefits	Maybe your jobs, at times, feel difficult because some of you, or your higher ups, are trying to justify projects that really can't be justified, either by science or public opinion.	<p>The EA referenced and/or cited background documents that provide the technical foundation for understanding existing conditions and for identifying restoration strategies and specific opportunities for restoration projects within the Entiat River. These documents provide the historical characterization, geomorphic assessment, hydraulic assessment, and aquatic habitat inventory used to design projects and include:</p> <ul style="list-style-type: none"> • The Entiat River Upper Stillwaters Reach Stream Corridor Assessment and Habitat Restoration Strategy. Prepared for the Yakama Nation by Interfluve, Inc in 2013. Electronic copies are in the Project Record and are available on request. • The Stormy Reach Assessment and Mapbook, Entiat River, Chelan County, WA prepared by the US Bureau of Reclamation (BOR) in 2009. The Stormy Reach Assessment can be viewed online at: http://www.usbr.gov/pn/fcrps/habitat/projects/uppercolumbia/reports/entiat/stormyreach • Technical Memorandums from Natural System Design and Interfluve, Inc (<i>attached as Appendices C and D</i>) in response to the Forest Service Request with regards to potential effects of the 2015 Wolverine Fire on the project. In summary, design calculations were repeated for the project assuming and increase in peak runoff and debris racking and still indicated that an acceptable factor of safety was
Childers	Project Justification/ Benefits	The EA does not address the increased risk of mud flows, river impounding due to slides and flash flooding that could result due to the recent fires in the Entiat River Watershed.	
Childers	Project Justification/ Benefits	The EA does not address or take into account the history of mud flows and catastrophic flooding in the Entiat River Valley.	
Childers	Project Justification/ Benefits	The EA does not address the changes in river dynamics caused by engineered log jams which are affixed in the river.	

			<p>used and that modifications were not needed for the structures.</p> <ul style="list-style-type: none"> • Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan (Recovery Plan, UCSRB 2007) and the associated Biological Strategy (UCRRT 2013). <p>The Recovery Plan can be viewed online at: http://www.ucsr.org/Assets/Documents/Library/Plans/UCSRP/UCSRP%20Final%2009-13-2007.pdf</p> <ul style="list-style-type: none"> • Entiat Watershed Plan (2004) http://cascadiacd.org/entiat-watershed-plan-appendices_255.html • Wenatchee Forest Plan (1990) and Northwest Forest Plan (1994)
Wick	Project Justification/ Benefits	<p>Now that the threat of Entiat River's massive flooding caused by the recent fires has been reduced, it seems reasonable to proceed with normal operations including recreation and fisheries enhancement. I am not a big fan of placing material in rivers for the purpose of habitat improvements for fish. My, non-scientific, impression is that the project's benefit to fish habitat is very minimal relative to the cost of the project.</p>	<p>As stated in the EA (page 3) – “Large wood and pools in rivers provide important habitat to many aquatic species both in the main river channel and in side channels. Large wood provides shelter, hydraulic refuge, and creates pools with slow water that are important for rearing salmon and trout...”</p> <p>See Fisheries Analysis on Pages 36-43, “the overall cumulative effect of past activities on the Entiat watershed baseline has been toward the loss and degradation of instream habitat and reduction in fish populations, water quality and hydrologic function. Stormy A-Upper Stillwaters Restoration Project would continue to improve and recover stream habitat function and increase in distribution and abundance of fish species.”</p>
Gaines Irrigation District - Dahl	Project Justification/ Benefits	<p>Gaines School Irrigation District (GSID) thinks the Upper Stillwaters and Stormy A Restoration Project on the Entiat River draft EA does not fully explain the effects of post-fire sediment on the fisheries, the proposed project or downstream beneficial uses.</p> <p>Wenatchee World article http://www.wenatcheeworld.com/news/2016/jan/21/stud</p>	<p>Regardless of implementation of this project, increased sediment delivery from high burn severity upstream in the Wolverine fire area is expected to occur over the next 3-5 years.</p> <p>Information was added to the EA in the No Action section (pg. 14) to describe additional post-fire effects of the Wolverine Fire to sediment and fisheries.</p>

		<p>y-suggestswildfires-improve-spring-chinook-habitat/ on scientific study says: “But back to the spring chinook study, the impact of trees, brush and other material washing into the rivers and streams after a fire was positive for juveniles, but negative for the condition of beds where salmon spawn” This effect including post-fire sediment was not discussed in the Upper Stillwaters and Stormy A Restoration Project on the Entiat River draft EA.</p>	<p>“Potential pulses of sediment from material flows and runoff of ash and surface erosion, can have positive and negative impacts on late summer and fall adult spawners such as Chinook Salmon and bull trout. Impacts to the aquatic habitat would be short term increases in turbidity and fine sediment, while potential inputs of large wood and gravel could beneficially increase habitat complexity in areas of the river (i.e. create new spawning areas).”</p>
Childers	NEPA Process	<p><u>The EA needs to be sent to all the downstream property owners on the Entiat River as this project has the potential to impact all the downstream properties.</u></p>	<p>The USFS scoping and comment process was followed as required by the CEQ regulations.</p> <p>Public Scoping began on September 11, 2015 with the mailing of 25 letters and 52 emails to interested parties. A public scoping notice was published in <i>The Wenatchee World</i> on September 17, 2015. The scoping letter was posted to the Okanogan-Wenatchee Schedule of Proposed Actions (SOPA) website on September 22, 2015. The project was presented to the Entiat Watershed Planning unit during the quarterly meeting in October 2015. These scoping efforts generated three comments, which were considered during the development of the proposed action.</p> <p>The Draft EA was posted to the SOPA website and the legal notice for the 30-day public comment period was published in the <i>Wenatchee World</i> on July 28th, 2016. The comment period for this project began on July 29th, 2016 and closed on August 29th, 2016. Six timely written comments were received from individuals during this period.</p>
Gaines Irrigation District - Dahl	NEPA Process	<p>We are disappointed we were not able to see the reports and the project record for post-fire stability analysis before making our comments. Our FOIA request has not been filled. We are requesting that the final ea for Upper Stillwaters and Stormy A Restoration Project on the Entiat River that is posted for review/comment/objection show all streamflow and sediment assumptions, calculations, analyses and interpretations so that we can understand the reasonableness of the decision.</p>	<p>The request from Gaines Irrigation District was received on August 19th, which did not allow sufficient time for a FOIA request to be processed. For the Final EA and Draft DN/FONSI, Technical Memorandums from Natural System Design and Interfluve, Inc in response to the Forest Service Request Letter from 11/25/2015 to evaluate the post-wolverine fire conditions will be included <i>as Appendices C and D</i>.</p>

			<p>The Stormy Reach Assessment can be viewed online at: http://www.usbr.gov/pn/fcrps/habitat/projects/uppercolumnbia/reports/entiat/stormyreach</p> <p>The Upper Stillwaters Reach Assessment is available electronically upon request.</p>
Wick	NEPA Process	Maybe managing the river will reduce any chance that the Entiat River could ever be designated as "wild & scenic";	See Recreation and Wild and Scenic section of EA (pg 50-55). The Entiat River would still be eligible for Wild and Scenic designation. The project would not change the free-flowing river conditions and water quality and all Outstandingly Remarkable Values would be, protected or improved.
Childers	Burned Area Emergency Response	The Duncan Fire revealed an area of land with extreme potential to slide off the side of the mountain; similar to what happened in Oso.	<p>Slope stability issues related to recent wildfires are outside of the scope of the current project and were addressed in the relevant BAER reports.</p> <p>That being said, the recent shallow-rapid material flows within the Duncan Fire resulted from a completely different failure mechanism than the Deep Seated failure at Oso.</p>
Vradenburg	Burned Area Emergency Response	I greatly support anything that will increase fish habitat, specially in the Still waters Reach and further West on the Entiat River. the lack of any restoration on the wolverine fire seems to me to be a major problem. Having lived in the valley all my life (70 plus years) I have seen several major fires and what was done after each one as far as restoration goes. The mismanaged Wolverine fire will be a problem for years. As the downed timber moves down the river there will be many log jams formed. I have not seen any plan that addresses this problem, any restoration or any proactive ideas to re open the upper valley campsites. The economic impact has been made much larger by not opening the campgrounds. I have not seen anything that explains why they remain closed. After the 1970 fire which destroyed much of the valley west of Preston Creek there were no closures.	This project does not propose to change the closure order within the Upper Entiat Valley. This is outside the scope of this project.
Gaines Irrigation	Burned Area Emergency Response	Wolverine BAER claimed post-fire flow increases 6232/77901 cfs at Entiat Falls while calculating the 100year flood as only 4220 cfs (unbulked)	Design consultants, NSD and Interfluve, Inc analyzed 2 to 100 year flood events at multiple locations along the Entiat River

District - Dahl		<p>(http://cascadiacd.org/files/documents/1-6-16_EWPU_Attach_3a_1_WolverineEntiatBAER_Briefing_20160106.pdf)</p> <p>If indeed, the Rule of Thumb by Kuyumjian was used, we would like to see documentation of how it was modified for north central Washington and why rainfall was used as the driver when the Entiat River has a snowmelt dominated hydrograph with highest peaks usually occurring in June?</p> <p>What specific information have the post-fire monitoring gages provided to improve this project's design?</p>	<p>for both pre and post fire, as well as bulked predicted flows. See <i>Technical Memo's in Appendix C and D.</i></p> <p>The Kuyumjian "rule of thumb", referenced in BAER report, was used to perform a rapid assessment of potential peak flow caused by low frequency/high intensity storm events and their potential effects within the 2015 fire footprint. The Technical Memo's also addressed predicted flows using the Kuyumjian "rule of thumb".</p>
Childers	Other	<p>Consideration should be given to a moratorium on any new projects in the Entiat River Valley until unstable slopes stabilize and the burned areas re-vegetate.</p>	<p>This is the No Action Alternative – see EA page 14</p>
Childers	Other	<p>In addition, the USFS is allowing a large amount of trees with root wads to be decked on its property across from the entrance to the Preston Creek Road; presumably, in anticipation of the projects covered in the EA. This property does not appear to be much higher, in elevation, than the flood plain of the Entiat River. In the event of a catastrophic flood, these logs could be washed away causing downstream property damage. USFS should not allow logs to be decked at this site until the EA is finalized.</p>	<p>Based on LIDAR The Preston Pit is outside of the 100 year flood inundation area estimated by the Entiat River Upper Stillwaters Reach Stream Corridor Assessment & Restoration Strategy (YNFP 2013). Consequently, there is a very small probability that an event of sufficient magnitude to impact the Preston Pit would occur during the time that project logs are stored there (18 months).</p>
Childers	Other	<p>Apparently, there is no "zero net gain" flood plain requirement for these projects. There is a substantial amount of material which will be added to the flood plain in the location of these projects; thus, the flood plain will be increased in these locations. <u>The EA does not address the environmental impact of raising the flood plain.</u></p>	<p>Stormy A will not be implemented due to the potential increase in floodplain and water surface elevation during a modeled 100 year flood event that would extend onto private land upstream of the Stormy A reach. The Upper Stillwaters project area will not impact private land upstream as all lands are managed by the USFS. The Upper Stillwaters projects meet the requirements of sections 404 and 401 of the Clean Water Act. Permits will be obtained by the Yakama Nation from WDFW for a Hydraulic Permit and the design criteria and mitigation measures of the Regional General Permit between the Army Corp of Engineers, the Department of Ecology and the Forest Service will be adhered to during the project.</p>

Brady	Other	<p>Your plan is well thought out. I will make one minor suggestion. I would add shade trees on sun side of the river over all constructed pools to lower water temperature for fish enhancement. Any area disturbed by construction close to river should also be assessed for shade trees on sun side of the river. Thank you for the opportunity to comment.</p>	<p>Thank you for your comment. Design criteria (pg 25-27 of the EA) will ensure that all disturbed areas will be planted with shrubs and trees;</p> <p>“Existing vegetation, especially large trees and aspen stands, would be protected to the greatest extent possible during project implementation and any slash that is produced would be incorporated into LWM structures. Riparian vegetation planting would be completed after completion of LWM installation.”</p> <p>“Revegetation of disturbed sites shall utilize native tree seedlings and shrubs (locally collected from the Entiat valley) from Forest Service approved seed zones and sources.”</p>
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