

October 9 Office of the Chehalis Basin Webinar about Large-Scale Flood-Reduction Options in the Chehalis Basin: Answers to Questions Posed

On October 9, the District participated in a webinar hosted by the Office of the Chehalis Basin (OCB) concerning large-scale flood-damage reduction options under consideration by the OCB Board. [The recording of that meeting is available here.](#) On occasion, the meeting recording starts playing near the end of the webinar; if so, please use the scroll bar to return to the beginning of the meeting to view it in full.

Several attendees at the webinar asked questions. The OCB staff requested that the District answer questions pertaining to the flow-through dam for flood control, but asked that the answers be provided to OCB for Ecology's communications review before the District posted them. On October 18, the District provided its answers to OCB. On November 15, Ecology noted that it had finished its review and asked the District to post the answers. The District now does so below. These answers are from the District and reflect its information and viewpoint; they do not reflect the viewpoint or position of OCB or the Department of Ecology.

1. *So new DEIS's will be prepared for both LAND and the Flow-Thru Dam? If so, what is the timeline for public review and Board action?*

No, the ongoing SEPA & NEPA processes are evaluating the flow-through dam for flood control only. For the SEPA process, Ecology has announced an anticipated release date of their revised Draft Environmental Impact Statement (EIS) in Fall of 2025. The public comment period will occur following the release of the revised Draft EIS. For the NEPA process, the United States Corps of Engineers (USACE) has not yet announced an anticipated date regarding their next EIS release.

[The OCB opted to answer the rest of this question about Board action instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

2. *In 2023, the Chehalis Basin Board reported that Weyerhaeuser had refused to cooperate with a Forest Practices/Hydrology Study. Has Weyerhaeuser's position changed? If not, further dam planning should be halted until Weyerhaeuser cooperates.*

[The OCB opted to answer this question instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

3. *Trap and haul does not meet the needs of fish. Why does this continue to be promoted?*

The vast majority of the time, for years on end, the river flows freely through the flow-through dam and fish can swim freely through it. No trap and haul is needed. Only when catastrophic or major flood is forecasted—which has happened three times in the last twenty years—would the conduits close and the facility begin to hold back water. During this time, trap and haul would be used as a temporary measure to transport fish

upstream, facilitating their continued upstream migration. As flood forecasts show the peak has passed, the dam's pool is steadily drained until the river and fish can once again pass freely through the facility.

4. *The levees just transfer flooding downstream and make it worse for others. I support the flow-through dam.*

[The OCB opted to answer this question or ask the consultants who presented on the LAND alternative do so, instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

5. *What impacts can be expected to the south fork of the Chehalis and other tributaries if this plan moves to completion?*

The state and federal regulatory agencies ultimately decide the potential impacts of a project, so only the SEPA officials at the Dept. of Ecology and the NEPA officials at the US Army Corps of Engineers can give an authoritative answer to this question. However, the Flood Control Zone District's estimation is that impacts of the project are largely limited to the upper basin and do not affect downstream tributaries. Even so, there are mitigation sites proposed at the south fork/mainstem confluence and elsewhere downstream, to meet our commitment to provide no net loss of habitat function and ecological lift.

6. *Is there any plan for residential help, any resources for draining options?*

[The OCB opted to answer this question instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

7. *The site www.ChehalisBasinFCZD.com does not have obvious links to the revised design and mitigation plan - where can they be found?*

If you click on the Resources link, you can then click on "Flood Control Documents" to see the proposed Mitigation Plan and the Revised Project Description:
<https://www.chehalisriverbasinfczd.com/resources>

8. *Please address both State and Federal SEPA/NEPA Processes*

Both the state SEPA and federal NEPA processes for the flow-through dam are ongoing. For the SEPA process, Ecology has announced an anticipated release date of their revised Draft Environmental Impact Statement (EIS) in fall of 2025. The public comment period will occur following the release of the revised Draft EIS. For NEPA process, the United States Corps of Engineers (USACE) has not yet announced an anticipated date regarding their next EIS release.

9. *Will there be a committee who will work on the next phase of LAND? If so, who will be on the committee?*

[The OCB opted to answer this question or ask the consultants who presented on the LAND alternative do so, instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

10. Where can one see a projected 2080 flood map?

You can see the maps here: <https://www.chehalisbasinland.com/reference-maps/>.

11. The flow through dam is an interesting idea. Does a dam like this already exist elsewhere? Is there study of an existing similar design showing effects on fish and health of the river?

There is a flow-through dam for flood control in Japan. The Masudagawa Dam in Shimane Prefecture was built for flood control on the main channel of the Masuda River, and has been in operation since 2006. The UN Environment Programme highlights this facility as an example of an important adaptation technology for climate change that can provide flood protection for downstream communities while better maintaining natural river dynamics and reducing the negative environmental impacts of traditional dams. Please see this link: <https://www.ctc-n.org/technologies/flow-through-dam-flood-control>

12. Where can we learn more about the geotechnical risks and the considerations from Tribal consultation?

The Revised Project Description contains conceptual geotechnical design information in Part 5, Part 7, and Appendix E. This document is available on the Flood Control Zone District's "Resources" page linked below under the "Flood Control Documents" heading. Further geotechnical work, including analysis of borings of the proposed project site, is ongoing. Tribal consultation is also ongoing as part of Section 106 of the National Historic Preservation Act. The NEPA draft EIS beginning at page 190 (page 216 of the PDF) includes additional information regarding cultural resources and the ongoing tribal consultation. A link to that document is available on the Flood Control Zone District's "Resources" page.

13. Has the planning and design of the flow-through dam taken into account the occurrence of many large landslides that took place during the 2007 flood. Such landslides would cause major wave and surge action in a full reservoir.

Landslides are an important natural process in the upper reaches of the Chehalis River Basin. Similar to other coastal basins in Washington, storm-related landslides, debris flows, and other mass wasting events are the primary sources of sediment to the watershed. Over the past several years there has been a lot of work done within and around the temporary inundation area by the state and the District to better understand and document the existing conditions, including landslide identification and evaluations. For a site description and summary of the previous landslide studies please see the District's Stabilization Mitigation technical memorandum dated April 27, 2021 which is available on our resources page (link below). The Revised Project Description contains specific conceptual geotechnical information about landslides in Part 7 and Appendix E (the geotechnical appendix). The RPD includes discussion of the means for stabilizing known potential landslides in the vicinity of the dam and potential landslides within the reservoir area, as a risk-reduction measure. This document is available on the Flood

Control Zone District's "Resources" page linked below under the "Flood Control Documents" heading.

As part of final design of the FRE structure, a risk analysis would be performed to further evaluate the risks to the safety of the dam posed by landslides, including instrumentation and monitoring, and the design would be refined through this process.

14. Will the dam sponsor be responsible for implementation, liability, and funding?

The District is approaching this project as an owner/operator. Future work is being planned to explore additional options including potential partnerships with other entities.

15. What impact will raising the levee protecting the airport have on property owners downstream?

If the airport levee improvements alone were constructed, without any other action, they could have regulatory floodplain impacts for property owners downstream. But, because the flood reduction project includes both the flow-through dam for flood control and the airport levee improvements, the project is anticipated to result in lower regulatory flood levels for downstream property owners.

16. There is no mitigation for the fragmenting of the wildlife corridor that runs along the Chehalis River a corridor that is mapped and has been mostly ignored by these efforts to build a dam. Moreover, this riparian corridor leads from the lowlands to the uplands where climate refugia now exists. What is being done to address this issue?

The executive summary of the Revised Mitigation Plan summarizes the wildlife habitat conservation plan (Chapter 8, Section 3) for the project, which addresses this issue. This wildlife plan proposes specific actions that would provide a greater area of contiguous wildlife woodland habitat than exists with current timber harvest rotations in timberlands adjacent to the riparian corridor. The plan also identifies specific wildlife that are expected to benefit from proposed habitat changes. Please see the plan starting at page ES-1 (page 17 of the PDF), using the link on the Flood Control Zone District's "Resources" page linked below under the "Flood Control Documents" heading.

It is also important to note that mitigation for project is directed only to the impacts of the project itself. The Office of the Chehalis Basin's basin-wide strategy for fish and flood is not limited to the impacts of the flow-through dam alone, so different parts of that strategy may help further address this issue in the future.

17. Also, the incredible amounts of large woody debris that caused much of the damage in 2007 would be a major challenge to the function of the flow-through channels of the dam. How would the dam manage this accumulation of large woody debris in a catastrophic flood?

The 2007 event is an example of one of the rare times the flow-through dam for flood control would have held water in a temporary inundation pool to protect downstream communities from catastrophic flooding. The large woody debris that would enter the river upstream of the facility during such a flood will float atop the inundation pool.

Steady and slow drawdown of the pool is proposed to allow floating large wood to be captured on the banks of the inundation pool by flood fences (installed as part of the mitigation plan) and to be collected and stewarded by teams working on the pool into a level holding area on the bank of the inundation pool. There, the wood would lay down safely in the holding area as the pool is drawn down. The captured wood can then be sorted by value for mitigation or restoration projects throughout the Chehalis River Basin. A wood management plan is proposed in the Revised Mitigation Plan (Chapter 8, Section 4) with detail about mitigation measures and the disposition of large wood. The rest of the debris may be disposed of through other means.

18. Will the dam sponsor be responsible for implementation, liability, operation and finding funding?

Please see the answer to question 14, above, which is very similar.

19. What does "rare" mean? What is the frequency that the dam would be operated?

The flow-through dam for flood control is designed to operate only when major or catastrophic flooding is forecasted. A "major" flood is defined by NRCS as "extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations." Using this measure, the flow-through dam would have operated only three times in the past twenty years. It is likely to operate more often in the future because the frequency and severity of flooding is increasing. The Department of Ecology has noted that its revised DEIS will include an analysis of climate change to describe both project and no-project conditions in the future.

20. What is the estimated cost of the flow-through dam?

The estimated cost of the flow through dam in 2017 was \$750 million dollars. It is certain that the cost will be higher, in light of the rise of all costs since that time. The project has also been revised to be slightly upstream, requiring a wider facility. The exact increase in cost is not yet known because it depends on the result of ongoing geotechnical analysis about the site conditions. The Flood Control Zone District is currently studying those conditions and will be producing a revised cost estimate once the geotechnical analysis is complete.

21. There have been multiple references to 100-year floods. However, all around the world there have been rainfall events that far exceed 100-year floods. Isn't the Chehalis Project in danger of underestimating the environmental and fish impacts of a new dam by keeping it closed a lot longer and also inducing more downstream development under a faulty 100 year flood design?

The term 100-year flood can be misleading; it is more appropriate to discuss a flood that has a 1% chance of occurrence in any given year. Flooding is becoming more severe and frequent, so floods formerly considered to have a 1% chance are occurring more often than 1% of the time. Both the Flood Control Zone District, in its ongoing operational analyses, and the Department of Ecology, in its EIS process, are incorporating climate change predictions to avoid underestimating flood frequency or environmental impacts.

22. For LAND, please define "cultural Resources" - the presentation was not at all clear how impacts of measures such as levees or diversions would affect aquatic resources and ecological processes?

[The OCB opted to answer this question or ask the consultants who presented on the LAND alternative do so, instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

23. What is the expandable part of the proposed dam? is it more expensive to expand it? When will the district add to the dam that is being proposed?

The District does not propose to expand the project at all. The term "expandable" harkens back to a compromise option selected for further study by the Office of the Chehalis Basin and the Flood Control Zone District in 2017. In the review that preceded that, there was a choice between a flow-through-only dam and a taller dam that retained a permanent reservoir, to release water in the summer when more and cooler flows were needed. The compromise was to choose a shorter, flow-through-only dam that is built on a foundation big enough that it would not preclude building a taller dam on it in the future, should someone else in the future propose to do that. To be clear: the District's proposal does not include any plans whatsoever to expand the project to the taller dam—the proposed project is the shorter flow-through dam only. The shorter flow-through dam is simply built on a larger foundation so as not to preclude expansion that may or may not be proposed in the future under a separate project that would require a separate environmental review.

24. Can you explain the reason for the move downstream in the new FRE plan?

The revised project is moved slightly upstream, not downstream, of the prior design. The District learned through the Section 106 process that the original proposed alignment of the flow-through dam would have a significant, direct, and unavoidable impact to an important feature of a traditional cultural property. The intent of locating the facility upstream of the previous alignment was to minimize these significant impacts while providing the same level of protection for downstream communities.

25. The only reason a dam or LAND are needed is because of short rotation timber harvesting in the headwaters and continued development in the floodplain down river. Why should the public pay for a dam to offset the impacts of Weyerhaeuser forest management practices and City and County government development approvals?

[The OCB opted to answer this question or ask the consultants who presented on the LAND alternative do so, instead of the District doing so. When OCB's answers are made available, the District will update this document with a link to the OCB's answers.]

26. The loss of shade from dam construction will still result in a 1 degree river temperature increase - even with a vegetation plan with full participation of 130+ landowners. But what if there isn't full participation or landowners change?

We apologize, but the question is partially mistaken. The question is correct in noting that the construction of the flow-through dam, even with the vegetation management

plan, will result in a loss of shade that increases the river temperature. The question is incorrect in suggesting that the participation of the 130+ landowners in planting trees along the river is not enough shade benefit to compensate for this increase. In actuality, if those landowners participate as planned, it would increase shade enough to offset the temperature increase and actually would reduce temperature slightly below existing conditions near the confluence of the South Fork. Please see Table 6.2-2 of the Revised Mitigation plan, which notes the remaining temporary increase after construction with the VMP, and Table 7.3-6, which proposes shade that reduces solar inputs by 2.5 times the potential increase. The Revised Mitigation Plan is available from the "Resources" section of the Flood Control Zone District's website, linked below, under the "Flood Control Documents" heading. In addition, the District has identified many contingency parcels with shade supply that could be used to replace the shade mitigation lost due to landowner changes.

27. I live in the Skookumchuck and it floods there. How will the proposed dam help me and my neighbors?

While the proposed flow-through dam and airport levee improvements provide significant flood damage reduction for downstream communities, it cannot prevent flooding or provide protection for everyone in basin. In fact, no single action can solve or address all the flooding issues that our community faces during major and catastrophic storm events. This is why the OCB strategy is supporting not only large scale, basin wide, flood mitigation strategies like the flow-through dam and LAND levees but also location specific and site specific actions like home raising, relocations, and local flood projects.

It would be a mistake, however, to believe that actions on the upper Chehalis cannot affect flood conditions along the Skookumchuck. Holding back water on the Chehalis, which is a significant source of flood flows, can allow waters from the Skookumchuck to drain out faster than they otherwise might.

28. Please share how either the LAND or proposed FRE would be funded? State dollars? Federal money? Local taxes? This is an important factor for community members to understand.

The exact means by which the LAND or flow-through dam for flood control would be funded is not yet determined. Options for funding could include a combination of state or federal legislative funding, local economic development funding, state or federal grants, state or local bonds, state or local improvement funds, and more. These other options can be more readily pursued after the flood damage reduction portion of the overall Chehalis Basin Strategy is more fully formalized.

29. Thank you for the presentation! Excellent.