

**Commenter:** Lee First  
**Affiliation:** Twin Harbors Waterkeeper  
**Method of Comment:** Web  
**Date:** 10/21/2020

## Comment

### TMDL allocations

The Total Maximum Daily Load (TMDL) “or water quality improvement plan” is a science-based approach to cleaning up polluted water so that it protects the uses of the river, such as public health and salmon habitat. Also known as a “pollution diet”, a TMDL is a requirement of the Clean Water Act when a river is failing to meet water quality standards.

Ecology issued and EPA approved a TMDL to reduce temperatures in portions of the Chehalis River in 2001. A dam will worsen the river’s temperature problems. A TMDL for dissolved oxygen was also written and approved in the early 1990s. For both temperature and dissolved oxygen, please discuss in the next draft how the dam would receive pollutant allocations. How will the river meet water quality standards and be in compliance with these two TMDLs with these new pollution stresses?

The discussion of TMDLs is incomplete in Appendix G. TMDLs set allocations for pollutant sources. Federal and State laws, rules, and case law do not allow a new discharge to a stream with a TMDL unless the discharge is covered by an allocation or causes no impairment.

### Impacts on hydrology, floodplains, and water quality

Appendix G, Discipline Report for Water Quantity and Quality, does not adequately describe the impacts of construction of the dam. Please revise and include a more detailed description of the impacts caused by clearing all the vegetation in the reservoir area during the 5-year construction period. How will erosion, turbidity, and sediment be avoided during construction? What happens when there are high flows above the dam site during the construction period? How will sediment be controlled? How much water will be removed during the 5-year construction period, and what will be the consequences?

The Chehalis is already over-allocated for water rights and regularly fails to attain instream flows. Please describe more fully.

Please include a more detailed description of what disturbances to the floodplain in the reservoir area will result from equipment use, material staging, and tree removal. These impacts are described as temporary “but are expected to take at least 5 years.

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Appendix G, Discipline Report for Water Quantity and Quality states that the FRE structure will result in a medium reduction in the extent and duration of flooding in certain areas during the 10-year and 100-year floods. The document also states that these changes would be considered an indirect beneficial impact. I disagree with this statement. We all know that floods are beneficial to riverine processes. Floods recharge wetlands, groundwater and have countless positive effects including delivering and sorting salmon spawning gravel and large wood to the river.

### Cost and amount of time required to build a dam

Please revisit and provide more information about the cost and amount of time required to build a dam. A report I found, published by the University of Oxford, examined 245 large hydropower dams in 65 countries built between 1934 and 2007. It shows that the costs of dam construction were underestimated by 96 percent on average, and that construction times were 44 percent longer than first estimated. Citation: Ansar, A. et al., 2014. "Should we build more large dams? The actual costs of megaproject development." Energy Policy. University of Oxford.

### Impacts to water quality during construction

Please revisit the impacts to water quality during construction. Specifically, what problems will be caused by stormwater runoff from uncured and new concrete used to construct the dam? 5 years of construction "is not temporary, in my opinion. The impacts will likely be major. What will happen if upstream cofferdam were overtopped at the worksite during a high flow event? Will there be fuel or chemical contamination to the river? Will construction equipment become submerged?

### Impacts to Groundwater

Please describe the impacts of both long-term and permanent loss of portions of the hyporheic zone during construction upstream of the dam site.

### Climate Change

When coupled with increased winter precipitation through the rest of the basin, this could in turn lead to an increased potential for winter flooding and landslides in downstream portions of the basin. The headwaters area, largely because of past forest management "was a disaster during the 2007 flood. There were thousands of landslides, which worsened downstream flooding. The document is totally

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inadequate in describing how climate change will exacerbate intense weather patterns, flows, and flooding regimes. Why does the document state that the dam is expected to impound water, on average, once every 7 years during a major flood. The SEPA addressed this more adequately. Why? We all know that floods will be occurring more frequently. Please revise this section accordingly.

With warmer temperatures during the winter, wintertime precipitation would shift from snow to rain in the higher elevation portions of the basin. This shift could increase winter streamflow and contribute to higher downstream flows and increased flooding potential. Such occurrences could in turn increase slope instability, resulting in increased potential for debris flows, mudflows, and landslides in the steeper portions of the Chehalis Basin. How will these shifts be addressed? Please revise the document accordingly.

Impacts to water quality because of changes in the vegetation community in the reservoir area

Inundation associated with each retention event would essentially result in the resetting of the vegetation communities present in the temporary reservoir area. How will invasive species be controlled?

A comment about the airport levee

This solution did not address all the complications within the airport levee, such as additional inflow from local storm drainage and seepage that may extend the duration of flooding within the levee, but these results are improvements over previous model results.

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**Commenter:** Lee First  
**Affiliation:** Twin Harbors Waterkeeper  
**Method of Comment:** Public Meeting  
**Date:** 10/8/2020

### Comment

My name is Lee First. I'm the Twin Harbors Waterkeeper out of Aberdeen, and I noticed that the SEPA was much more detailed than this NEPA. Why? The impacts on water quality, fish impacts, and landslide impacts were very vague compared to the SEPA. Why? Why was climate change not addressed in this NEPA draft? Instead, it used historic data from the last 30 years. Contrast this with the SEPA, which stated that late century flows will increase by 26 percent and flood frequency will increase over time. Why did the study area of the end of the floodplain at Porter? The major failing of this draft is that there was no non-dam alternative. Why? Thank you very much. That's the end of my comments.

**Commenter:** Pat H.  
**Affiliation:** Trout Unlimited  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

Good afternoon. My name is Pat H., a member and supporter of Trout Unlimited, with over 300,000 members and supporters including 4,000 members in the state of Washington. TU is North America's largest nonprofit organization dedicated to protecting, conserving, and restoring cold water fish in the watersheds. TU is dedicated by using the best available science to guide conservation efforts, and our strength is derived from volunteers, grass root members like myself, working with our staff for the common goal of ensuring resilient fish population for future generations. I commend the collaborative effort to develop, fund, and implement the ambitious Chehalis Basin Strategy to find solutions for people and fish. However, the flood retention facility being proposed in Alternative 1 and 2 would result in substantial adverse impacts on aquatic species and habitats in the basin as follows: Appendix K of the NEPA EIS clearly states, EDT model predicts that the FRE structure would have significant negative impacts on all four modelled species in the upper watershed above Crim Creek, especially on spring run Chinook salmon. The construction period could have long lasting impact on modelled species due to the low passage survival rates and degraded habitat. All species were predicted to decline by large percentages during construction. In late century, with the proposed FRE structure, all species under the modelled water year were also predicted to decline. The upper watershed above Crim Creek beneficial -- is currently beneficial salmon habitat that can provide a buffer against future potential degradation, including climate change, which was not included in the NEPA analysis. The results presented are clear. The detrimental impacts caused in construction and by the facility would be significant and threaten the sustainability of our salmon and steelhead populations. I do not support the actions in this proposal. However, I do support developing flood damage retention action that could not have -- that does not have significant adverse impacts on our struggling salmon and steelhead populations. Thank you.

**Commenter:** Rob Krehbeil  
**Affiliation:** Defenders of Wildlife  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

Well, good afternoon. My name is Rob Krehbeil, and I'm a northwest representative with Defenders of Wildlife based in Tacoma, Washington. On behalf of our 25,000 members and supporters in Washington, please accept the following comments explaining our opposition to the proposed dam on the Chehalis River, which the DEIS refers to as a flood retention facility. Dams significantly alter the hydrology, habitat, and ecosystems of the rivers they block. Even with mitigation measures, most dammed rivers are a sad echo of what they once were. Washington is one of the most dammed states in the country, and our efforts to dam almost every river and stream has significantly contributed to the collapse of salmon across the region leading to a cascade of effects on other wildlife, ecosystems, fishing economies, and tribal culture and way of life. The Chehalis River is the last free flowing large river left in Washington. We are concerned that this dam will cause significant and irreparable harm to salmon runs resulting in their listing on the Endangered Species Act. This would also significantly reduce a source of food for starving and endangered Southern Resident Orcas, which the DEIS barely mentioned. These whales rely on coastal salmon runs including those that return to the Chehalis Basin during the winter and early spring. We also stand with the Quinault Nation and are extremely concerned that this dam violates the 1856 Treaty of Olympia, and that the construction of this dam will likely result in litigation. The State's DEIS also casts doubt on the effectiveness of this dam and how long those benefits will last. The State estimates that fewer than half of the structures impacted by flooding right now would be protected by the dam. And as climate change further intensifies flooding, it is also likely that the dam just kicks the can down the road failing to deliver the long-term solutions that the basin needs and sacrificing salmon in the process. We continue to support plans like the Aquatic Species Restoration Plan and think that the State should move forward with a non-dam alternative following the direction of Governor Inslee. We support a no action alternative on the part of the Army Corps of Engineers and look forward to working with the State and its partners on a more conservation-friendly alternative. Thank you.

**Commenter:** Cindy Hansen  
**Affiliation:** Orca Network  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

My name is Cindy Hansen, and I'm representing the nonprofit Orca Network. We have grave concerns about the impacts of this project, both environmentally and culturally for local tribes. And we'll cover those in more detail in our written comments, but today I would like to concentrate on impacts to the endangered southern resident Orcas. The DEIS states that killer whales would experience low impacts from the slight decreases in abundance of Chinook salmon and that it is likely that they would only lose a small part of their food source. This is a serious understatement of the potential impacts on southern resident Orcas. Chehalis River salmon are part of the west coast Chinook salmon stock that had been identified as a priority stock, and there's plenty of data to show that southern residents forage off Grays Harbor. Furthermore, the loss of even a small part of their food source could be devastating to this endangered population with only 74 individuals remaining. It's also worth noting that southern resident Orcas are constantly moving within their range, and they will go where the food is. As Puget Sound and Fraser river stocks fail to decline -- or fail to recover, coastal stocks are becoming increasingly important to them. Current salmon recovery efforts throughout their range could take decades to see results that will be beneficial. It's vitally important that we protect the salmon runs we currently have rather than assume that they are expendable and that southern resident Orcas will just find food elsewhere. The southern residents are on a precipice, and we have been witnessing their slide toward extinction as one by one their food sources have disappeared. We are certainly sympathetic to those in the Chehalis Basin who have been impacted by floods, but this project poses an unacceptable risk to our Washington State marine mammal that we cannot support. Instead, we are in favor of creating and implementing smart development and river restoration plans that will mitigate flooding without threatening salmon and Orcas. Thank you.

**Commenter:** Lee First  
**Affiliation:** Twin Harbors Waterkeeper  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

### First Twin Harbors Waterkeeper Comment

Thank you. I'm Lee First. I'm the Twin Harbors Waterkeeper based in Cosmopolis. I'm a member of the international water keeper alliance with 350 waterkeepers around the world that work for fishable, swimmable, drinkable water around the world. I'm particular -- I'm going to comment on climate change today. I'm very concerned that when coupled with increased winter precipitation through the basin, there will be an increased potential for winter flooding and landslides and downstream portions of the basin. The head waters area, largely because of past forest management, was a disaster during the 2007 flood. There were thousands of landslides, which worsened downstream flooding. The document is totally inadequate in describing how climate change will exacerbate intense weather patterns, flows, and flooding. Why does the document state that the dam is expected to impound water on average once every seven years during a major flood? The SEPA addressed this more adequately. Why? We all know that floods will be occurring more frequently. Please revise this section accordingly. With warmer temperatures during the winter, wintertime precipitation would shift from snow to rain in the higher elevation portions of the basin. This could increase winter stream flow and continue -- and contribute to higher downstream flows and increased flooding. Such occurrences could in turn increase slope instability, resulting in increased potential for debris flows, mud flows, and landslides in the steeper portions of the basin. How will these shifts be addressed? Please revise the document accordingly. I just want to say something about the inundation. So the inundation -- when the dam is holding back water, it would essentially result in resetting of the vegetation communities present in the temporary reservoir. How will invasive species be controlled? And who will be in charge of doing that work? Thank you very much for the opportunity to comment.

### Second Twin Harbors Waterkeeper Comment

I want to make a comment about the airport levee. It seems like in the document it says over and over that this proposed action will not, you know -- it won't affect the river in the vicinity of the levee, you know. It won't affect a lot in the vicinity of the levee, but I wonder -- I'm especially concerned with stormwater and pollution, so I wonder if this -- if the proposed dam will affect the levee in -- with something -- with additional inflow from local stormwater drainage and seepage that may extend during the duration of flooding within the levee. So that's one of my comments, and I'm going to come up with another one here. Oh, so one of the sections said that the reduction of flooding -- when the dam is deployed and water is held back, this will actually be a beneficial -- it will be beneficial to places like

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downstream road crossings and bridges. So that's called an indirect beneficial impact. I disagree with this statement. We all know that floods are beneficial to riverine processes because wetlands recharge -- floods recharge wetlands. They recharge groundwater. They -- and they have countless positive effects including delivering and sorting salmon gravel and large wood to the river, so -- so, you know, I disagree with that beneficial impact. And I do have more comments, but I'm going to include them in my -- in my letter instead, but thanks a lot for calling -- I'll try to take my hand down. Thank you very much.

**Commenter:** Terry Wright  
**Affiliation:** Orca Conservancy  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

Hi. I'm Terry Wright with Orca Conservancy speaking on behalf of the southern resident killer whales. Orca Conservancy supports comment made by Cindy Hansen from Orca Network and Rob Krehbeil from Defenders of Wildlife. We are opposed to all the proposals put forth in this EIS. We are particularly concerned that these proposals contribute to habitat degradation leading to destruction of salmon runs in the Chehalis. And we disagree with the findings that high impacts to salmon, essentially spring run Chinook, equates to low impact on downstream marine mammals such as the southern residents. Destroying another food supply for the Orcas will surely hasten their slide to extinction and is a direct violation of their endangered status issued in November 1 of 2005. The ESA prohibits federal actions that are likely to jeopardized the continued existence of this species. Such actions include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. Newer fisheries acknowledge new information that southern residents spend substantial time in coastal areas of Washington, Oregon, and California and utilize salmon returns to these areas. These coastal waters are recognized as an essential foraging area for this critically endangered population in the winter and spring. Southern residents are dietary fish specialists and depend upon abundant populations of Chinook salmon for survival. Construction of this project harms Chinook salmon, especially spring run Chinook, which is extremely important to the southern residents. If any of these proposals move forward, what steps will you take to ensure this endangered species has enough to eat? Destroying the salmon in the Chehalis has a cumulative effect on Orcas because of the already decimated salmon runs in the Snake River. Essentially, we would be creating a food desert for the Orcas. Orca Conservancy does not support this and respectfully asks that other alternatives are explored and that the Army Corps of Engineers deny this application. Thank you.

**Commenter:** Laurie Kerr  
**Affiliation:** Great Old Broads for Wilderness – Cascade Volcanoes’ Chapter  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

Hi. My name is Laurie Kerr. And I represent the Cascade Volcanoes' chapter of the Great Old Broads for Wilderness. I have visited the repairing areas along the Chehalis River, and I am deeply concerned about the proposed flood control project on the Chehalis. The proposed project on the Chehalis is a project doomed to run Chinook salmon, steelhead, and southern resident killer whales to extinction. Currently the Chehalis is closed to steelhead fishing due to already low steelhead runs. The prospect of a dam certainly dooms salmon towards extinction as a dam would cause degradation of fish and wildlife habitat, increased water temperature, and turbidity. The project would, likewise, increase greenhouse gas emissions and impact wetland habitat. The decline in salmon population is also due to climate change. In early January, state experts noted that 25 percent of the Chehalis River Basin retained optimal temperatures for coho salmon. This is expected to decrease to 6 percent by 2040 and to 2 percent by 2080. Scientists maintain that Chinook are the most vulnerable to the increasing temperatures because they spend most of their time wading in upstream areas to spawn. Furthermore, the destruction of native fish populations on the Chehalis is a violation of treaty obligations as signed in the Treaty of Olympia in 1856. This dam would destroy significant cultural sites and their traditional fishing and hunting grounds. The analysis is incomplete, and it revealed that no serious alternative to the dam had been considered. The options for flood control would be to provide mitigation and assistance to landowners in the floodplain, invest in habitat restoration, culvert removal, and dechannelization where the river has been artificially narrowed. Furthermore, we need to discourage new floodplain development and to reharvest. Since 2002, about 230,972 acres of the watershed have been logged according to the Department of Natural Resources, and this accounts for up to 14 percent of the forestland there. The impacts of clear cutting and logging roads set the stage for large landslides. These landslides fill creeks and ravines. In some areas logjams might act like small dams temporarily holding back water until they topple over or are breached. As the floodwaters continue to move, it inundates Chehalis and Centralia of which as much of 70 percent lie in the floodplain. Drainage is also a problem because of the layer of impervious clay just below the shallow soil. We cannot continue to subsidize large scale developments and bailouts. Stricter building regulations in the flood plain need to be adapted rather than constructing dams.

**Commenter:** Shari Tarantino  
**Affiliation:** Orca Conservancy  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

Hi. Name is Shari Tarantino, and I represent the Seattle-based nonprofit Orca Conservancy. Orca Conservancy supports and wishes to acknowledge the comments made by Cindy Hansen from Orca Network, and as my colleague Terry Wright stated -- requests that the United States Army Corps of Engineer find a better solution to the flooding in the Chehalis Basin, and we offer the following: When European settlers first came to the Chehalis Basin, we ignored the sage advice of the indigenous peoples that have called this land home for thousands of years. We were warned to not build in the floodplain, but we chose to do so anyway leading to our current dire situation. Orca Conservancy opposes all three alternatives listed in the federal DEIS and proposes instead we follow the Dutch strategy known as "Room For the River." This strategy will not destroy habitat and the myriad species dependent on this habitat, including the southern resident killer whale, and will instead protect and restore this area, including protecting human development by relocating those families, farms, and businesses most at risk. The proposed flood reduction project proposal only protects some buildings but at a far greater cost. In following the "Room For the River" strategies, we will honor treaties with the tribes. We will honor the other species who live in the basin, and honor the recently established families and businesses by protecting all and by safeguarding against climate change. "Room For the River" strategies were adopted as the best scientific means for safeguarding habitats against climate change by working with nature instead of against nature. It is time to adapt solutions for the future instead of relying on past strategies that no longer make sense, and we can do this by saving money as well. In 2019, the National Institute of Building Sciences issued a report stating that the U.S. could save more than \$1 trillion over the long-term by removing roughly one million homes from the flood prone areas and relocating residents to higher ground. We can safeguard all, including the southern resident killer whale population. To adopt any of the proposed DEIS plans is to ensure southern residents will continue to slide towards extinction, and we cannot allow that to happen. Thank you.

**Commenter:** Brian Stewart  
**Affiliation:** Conservation Northwest  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

## Comment

Thank you. My name is Brian Stewart. I'm the Cascades to Olympics program coordinator for Conservation Northwest, and I agree with all the great points we've heard tonight. I just wanted to touch on a couple things real quick. First, I'd like to kind of just bring up the fact that these web-based internet-required sort of informational systems are great, but there's a lot of low income folks, especially rural communities, who might not be able to access that, and it would be great if there was a way to get the education into their hands without them needing to visually have internet to see what's going on. You know, and also just to point out that it's clear that NEPA, the DEIS, it's clear there's going to be impacts to cultural sites. There's going to be impacts to low income folks. And regardless of how close they are to the project, negative impacts in these things tend to fall on the marginalized communities the most. So I just wanted to make sure that's being said and that's on the record. And then, you know, habitat connectivity is addressed in this NEPA document sort of glancingly, and I think it's inappropriate and sort of inadequate for what the project does to a riparian corridor. A corridor like the Chehalis River is a massive movement corridor. 85 percent of wildlife depends on those type of corridors for food, movement, you know, everything. And so when you disrupt or modify a corridor like that, the impacts are cascading, and it talks about connectivity, but it doesn't address it species specific. It doesn't address it as a resource in itself, which I think is a problem because as climate changes, these riparian corridors become more than networks. They become how species can adapt and move around like they have historically. And impeding the movement of any species, a beaver, a vole, can seriously disrupt their ability to persist and for their populations to be sustainable. And so I really think that if anyone is going to like really take this seriously and if it's ever going to be supported, that's going to have to be addressed. But as we see it now, I don't think we can support this NEPA. SEPA was a better document and we didn't support that, and so I think at this time really we should maybe move on from thinking about how this dam could be good or bad and start talking about what are the alternatives and, you know, just to continue to support the local action alternative that the governor has requested be drafted. And thank you for your time.

## Chehalis NEPA EIS Public Comment Record    ORG-0011-MTG-CitizenCleanHarbor

**Commenter:** Tammy Domike  
**Affiliation:** Citizen Clean Harbor, Grays Harbor  
**Method of Comment:** Public Meeting  
**Date:** 10/14/2020

### Comment

Thank you so much. I'm Tammy Domike, and I'm the community organizer with Citizen Clean Harbor here in Grays Harbor, and I agree with the wonderful comments that have been given here earlier today. I'm very concerned with the damage harms over the five-year construction period. Leaving that entire flood containment area bare will bring about more landslides, hotter water, the silt, everything else, and it just leaves no salmon habitat whatsoever. The other thing is that there's so little coordination between projects that are going on. There's a huge I-5 construction thing happening with WSDOT, and I see no mention of the Chehalis dam in that or that in the Chehalis dam. So, I mean, is the I-5 thing going to create more problems when you finally get around to -- you know, hopefully what we're going to do with the Chehalis will be restorative salmon habitat. We need to follow Governor Inslee's advice, and I stand with the Quinault and the Chehalis people in opposition to this dam project. Thank you.



Brandon Clinton

Corps EIS Project Manager

United States Army Corps of Engineers

and

Anchor QEA

6720 South Macadam Street, Suite 125

Portland, OR 97219

(Submitted via the Chehalis Basin Strategy Website)

Applicant: Chehalis River Basin Flood Control Zone District (NWS-2014-1118)

RE: Conservation Northwest Comments on NEPA Draft Environmental Impact Statement for the Chehalis River Basin Flood Damage Reduction Project:

Nov 11<sup>th</sup>, 2020

Dear Mr. Clinton and Anchor QEA,

Thank you for the opportunity to provide comments on this important National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) for the Chehalis River Basin Flood Damage Reduction Project.

We are submitting these comments on behalf of Conservation Northwest (CNW). CNW is a non-profit environmental group based in Seattle, Washington with staff located on the ground in the areas where we work, including Thurston and Lewis Counties. Our mission is to protect, connect and restore the wildlands and wildlife of the Pacific Northwest. We focus on recovering native species and ensuring they have ample habitat in the right locations to thrive in the face of the human footprint on natural landscapes, as well as climate change. Habitat connectivity is therefore a key piece of our work and has been since our founding in 1989. We have an organizational program dedicated specifically to connectivity between the Cascades and Olympics (<https://www.conservationnw.org/our-work/habitat/cascades-to-olympics/>), which is one reason why the impacts of the proposed Flood Retention Expandable (FRE) and Flood Retention Only Facilities (FRO) are of great interest to us.

We provide here technical comments on habitat connectivity, climate change, forest practices, impacts on hydrology, permitting, and note others' technical comments on aquatic species and ecosystem processes. We also provide comments from a process perspective on the need to



continue developing a non-FRE local actions alternative, and the impact on the process at this point of not having potential mitigation measures clearly identified and described. While our comments are focused on the FRE, we feel they are still applicable to the FRO proposal, simply at a smaller scale.

## **General Comments**

First, we appreciate the unequivocal statements and identification of direct and significant adverse impacts of building and operating the Flood Retention Expandable (FRE) facility (or dam) to fish, wildlife, wetlands, water quality, and cultural resources. Even with the lack of adequate analysis of some of the impacts, the document leaves no doubt that proceeding with this proposed action would involve significant and potentially irreparable damages to natural systems and resources important to people in the Chehalis Basin and statewide.

Second, we think the NEPA DEIS is inadequate in its analysis of the impacts of climate change by failing to model for likely changes. While there is mention of the uncertainty of future climate and the impact on potential outcomes, the NEPA DEIS fails to model the likely changes to floods and hydrology that climate change will have on the environment. Projects like the FRE must analyze and model the impacts of climate change in order to make adequate assessments of natural system responses and the FRE's ability to reduce flooding in the future. Climate change is not something separate from the impacts of any proposed project but rather the day-to-day reality we all have to live with, and its severe impacts for which society has to plan, even in the face of aggressive national and global mitigation measures.

In fact, compared to the SEPA DEIS the NEPA DEIS lacks findings for key resources due to the lack of future climate modeling. One stark example is the fact that the SEPA DEIS shows nearly a 30% increase in precipitation/flooding overtime due to a changing climate, while less conservative NOAA models suggest a 50% increase. By omitting those models, the NEPA EIS fails to address and acknowledge potential future impacts of the project on fish, people, wildlife, and the landscape. Furthermore, the lack of key climate impact information, has led to the NEPA DEIS severely underestimating the hundreds of acres of habitat that will be lost, to an ever-increasing inundation area. We recommend that a supplemental NEPA DEIS is drafted that includes climate modeling, potentially the models used in the SEPA DEIS, it is difficult to support a project that intentionally omits key environmental influences and the future effectiveness of such a project.

Third, we are very concerned with the lack of analysis of the “expandable” aspect of the FRE facility and absence of any linkage to the purpose and need statement of the potential for increasing the capacity and footprint of a larger dam. While we understand that a new analysis and permitting process would be required to use the expandable capacity, it is a disservice to the public to propose a structure with additional capacity and not do an upfront analysis of what the additional impacts would be. Once a structure like that is in place, it tilts the future pathway towards a decision to use the additional capacity. As such, an analysis of the additional impacts should be included now. Such segmentation calls into serious question whether the DEIS meets the requirements of NEPA.

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Fourth, from a process perspective, the public is left in an entirely unsettled place by having the mitigation for all significant impacts that were identified in the NEPA as broad statements or complete unknowns. While we realize that the NEPA approach is to focus more on prevention than post-project mitigation recommendations, nevertheless we think it lessens the accuracy of the impact statements if the post-project mitigation efforts are complete unknowns. There is no way to have any understanding or confidence that mitigation could be possible or adequate, so we are left to assume scenarios in which the public has to choose between the incomplete level of flood damage reduction provided by the FRE facility and loss of ecologically and culturally significant aspects of the natural environment. The damages from future flooding without some form of flood reduction work are also daunting and unacceptable to the people who would bear the brunt of those damages. The NEPA DEIS presents a no-win situation.

If further work occurs on analyzing the potential to build a dam, we recommend a much more thorough exploration of whether mitigation for the identified damages is possible, how climate will impact this project and the watershed (in addition to more specific items described below) in a supplemental EIS (as mentioned earlier in these comments). We also support the ongoing development of the non-FRE local actions alternative that is currently being pursued by the Chehalis Basin Board.

Although NEPA initially considered well over 50 alternatives to the FRE, it only offers the Flood Retention Only (FRO) as an alternative, essentially a smaller version of the FRE. Not providing a true alternative to the FRE appears to be one failure of this NEPA process. We understand that other avenues have been studied and have been dismissed, but the trade-offs laid out in the DEIS appear to set up a lose-lose scenario in which the public will not be well served. We are especially concerned about the heavy impact on the needs of the Chehalis and Quinault Tribes, and to residents in portions of the Basin who will not benefit from flood reduction, but will have to deal with the impacts of the dam. Given the information we have to date, we cannot support the approval of the proposed project.

### **Wildlife Habitat Connectivity Impacts**

Habitat connectivity is an essential requirement for resilient wildlife populations. The term refers to the ability of wildlife species to move from one portion/patch of habitat to another in order to meet daily and seasonal survival needs (feeding, resting, and breeding) and more medium and long-term requirements of colonizing new habitats when prior occupied areas no longer provide their survival needs, and for species to be able to maintain population numbers (demographic support and rescue) and genetic diversity over space and time to prevent extirpation and extinction. Maintaining connectivity is more difficult in landscapes where there has been habitat loss and degradation due to human land use activities (e.g. conversion of native forest to tree plantations or agricultural or urban uses), and when large barriers to movement such as highways have been constructed, e.g., the role of Interstate 5 ([https://www.conservationnw.org/wp-content/uploads/2020/01/Final\\_Stewart\\_CNW\\_Cascades\\_to\\_Olympics\\_Whitepaper\\_2019.pdf](https://www.conservationnw.org/wp-content/uploads/2020/01/Final_Stewart_CNW_Cascades_to_Olympics_Whitepaper_2019.pdf)) in blocking movement of wildlife between the Cascades, southwest Washington, and the Olympics (Stewart, 2020).

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In addition to the challenges of navigating human-altered landscapes, wildlife populations are now needing to confront climate change. When overall climate conditions and the underlying vegetative composition, structure and function of habitats change due to climate driven differences in precipitation and temperature, many species need to migrate to new areas in order to survive. If the landscapes they need to cross are inhospitable or have barriers to movement, climate-induced migrations may be impeded and fail (Krosby et al., 2018; Nunez et al., 2012; Washington Wildlife Habitat Connectivity Working Group (WWHCWG, 2011).

Conservation Northwest submitted scoping comments for the development of the SEPA Draft EIS noting the importance of analyzing the impacts of the proposed FRE facility and the airport levee on wildlife habitat connectivity corridors. We noted that the programmatic SEPA EIS (DOE 2017) discussed the potential impacts to elk migration using work from 2010 done by the Washington Wildlife Habitat Connectivity Working Group (<https://wacconnected.org/>). We asked that the SEPA Draft EIS coordinate with that group as they, along with Cascades to Coast Landscape Collaborative (<https://www.ctoclc.org/>) are conducting updated analyses on wildlife connectivity corridors through the Chehalis Basin.

Unfortunately, neither the SEPA nor this NEPA DEIS include substantial and relevant habitat or landscape connectivity analyses. Thus, federal agencies conducting NEPA should also be coordinating its connectivity analysis with these groups, with the goal of incorporating their work into the final NEPA EIS. This work is on-going but has produced landscape level connectivity maps (<https://databasin.org/maps/adf2a065528c42f892bd20883e6b0bd1>) showing the area around the FRE, FRO, temporary reservoir, quarries, and the airport levee to be within key “naturalness” linkage corridors, connecting protected areas and conserved areas between the Cascades, Olympics, Willapa Hills, and the coast (Gallo et al., 2020). These linkages could be important pathways for a wide range of native species to meet a variety of life history needs and longer-term population connectivity and genetic exchange. Furthermore, the linkage overlapping the FRE site, and temporary reservoir area, is one of the widest intact corridors in the basin. Fragmenting this area further could potentially cause serious landscape-scale mobility issues for a wide range of native terrestrial and semiaquatic wildlife.

The above-mentioned workgroups are producing species specific connectivity maps (e.g., Pacific fisher and beaver) through the Chehalis Basin, showing complex networks for different species and ecological processes. These products should be available early next year (2021) and should be incorporated into any supplemental analysis, and development of additional alternatives. Our assessment from the more general naturalness corridors and the impacts on changes in vegetation cover within the FRE facility footprint and temporary reservoir identified in the DEIS, is that a direct and high (significant) impact finding should be considered.

We are surprised to see that the NEPA DEIS contains little analysis of habitat connectivity issues, and while addressed in an overarching sense is not evaluated as an independent resource, as we would recommend. While connectivity is addressed for elk in a narrow way, other ecological and species’ needs were either overlooked or lumped together without an aggregated analysis of independent or interdependent network needs. Given that there are numerous potentially long-ranging species that may appear in the FRE footprint area, including cougar,



bear, fisher, wolf, and deer, NEPA should go further in identifying the migratory or dispersal routes that will be disrupted by both construction and operation of the facility. Another area the NEPA document could better analyze is the permanent loss of habitat connectivity for smaller terrestrial and semiaquatic species that rely on the riparian valley bottoms to access suitable habitat and for longer ranging movements.

The operation of the FRE will cause some species to avoid this section of the riparian corridor permanently or on occasion, therefore disruption of habitat connectivity should be analyzed and called out as an impact of facility operation as well as construction. Different types of noise and human disturbances can cause different flight responses in wildlife, depending on group size, age, season, and closeness to safety or preferred habitat type (Stankowich, 2008). In fact, even minor traffic noise or human used recreation trails can cause disturbances in some nesting bird and wildlife populations, the interaction varies greatly between species and human activity type (Gaines et al., 2003; Shilling et al., 2018). Unfortunately, the NEPA DEIS does not analyze these phenomena in a way to make an informed impact assessment on FRE construction or operations. These disruptions diminish habitat connectivity potential within and around wildlife corridors and linkages, while reducing usable habitat for some species. More should be done to understand what interactions will occur when new noises and disturbances are added permanently to the area.

Wildlife-vehicle collisions (WVC) are a physical artifact of fragmented wildlife populations near roadways. Larger mammals like deer and elk have the greatest potential to cause human injuries or end human life (Bissonette & Cramer, 2006). Furthermore, when that road exists in or around a migratory corridor for ungulates those roads show higher than average WVCs (Yinhai Wang et al., 2010). However, all species that move over or around roadways experience WVCs, in fact smaller species like amphibians and rodents are killed frequently on roadways, but usually go unreported. The proposed facility will increase traffic in the area greatly during construction and presents the very real possibility of WVCs occurring to a wide range of local species. In addition, the operation of the facility will also cause higher traffic volumes than are currently present in the area, which could lead to collisions, especially with small low-mobility animals. The DEIS should address the very real potential of WVCs, to accurately assess the impacts on wildlife populations from habitat fragmentation created by the construction and operation of the facility and its associated roads.

Lastly, there are frequent assumptions in the NEPA DEIS around carrying capacity, available habitat, and functioning linkages. The DEIS suggests species may move to adjacent habitat, without doing any evaluation of the functionality or accessibility of that habitat. If species move to adjacent habitat there must be available habitat, meaning the area cannot already be at its local carrying capacity. Also, the DEIS does not address the linkages that these species will need to move to adjacent habitat, this is especially true for smaller low-mobility species. Although the DEIS does state the uncertainty around such claims, it could do more to address this issue, especially if this logic lessens the assessed impacts or skews where and how mitigation should be deployed. Glossing over the carrying capacity or movement potential and assuming there is opportunity for species to relocate, could be a failing in the NEPA DEIS and may result in more loss of wildlife than is currently suggested in the NEPA DEIS.

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## Marbled Murrelets

We concurred with the SEPA DEIS assessment that there is potential for significant adverse impact to marbled murrelets. We also agree with the NEPA DEIS that the impacts would be both direct and high. If nesting habitat is found in areas of planned forest removal, habitat of at least similar, if not better, condition that is at risk of being harvested should be permanently protected. Protecting habitat that is already under ESA restrictions would not sufficiently mitigate the loss because there would be no net gain. The Washington Department of Natural Resources recently completed an amendment ([https://www.dnr.wa.gov/publications/lm\\_mm\\_hcp\\_amendment\\_formatted.pdf](https://www.dnr.wa.gov/publications/lm_mm_hcp_amendment_formatted.pdf)) to their federal Habitat Conservation Plan (DNR, 2019.). Their incidental take permit allows for the harvest of suitable unoccupied habitat. We recommend that if the proposed project were to be built, that the proponents purchase or place an easement on suitable habitat on DNR lands that would otherwise be lost to harvest under their HCP. The habitat should be in southwest Washington and be close to other habitat and occupied sites so it can function in a manner to support murrelet recovery.

If suitable habitat is found in the footprint of the FRE facility or would be harvested in the temporary reservoir area, and that habitat is found to be occupied, we would strongly oppose allowing an occupied stand being harvested. To date, we are unaware of USFWS allowing direct take of known occupied sites in Washington State given the declining status of the population. We do not think that just waiting until after the breeding season to remove the habitat and replacing it with suitable unoccupied habitat elsewhere is an acceptable impact to the species.

## Forest Practices and Hydrological Regimes

The NEPA DEIS does not contain an adequate analysis of the role of forest harvest extent and timing on either the incidence of floods or problems with summer low flows, high water temperature and low dissolved oxygen on the Chehalis River and its tributaries. We note that a process is underway to conduct modeling on this topic but that it has yet to be completed. We think that having such information is important to decision-making about both flood reduction and aquatic species restoration in the Chehalis Basin. The results of such an analysis should also serve as a basis for designing alternatives to the FRE facility which address flooding in a wider portion of the Basin, and for ensuring resilient aquatic and semiaquatic species populations in the face of climate change.

There is recent research and modeling that shows that forested watersheds managed on 50 year rotations or less result in substantially lower stream flows than either un-managed forests, or forests that are managed on longer (80 years or more) cutting cycles or through commercial thinning without final harvest (McKane et al, 2018; Perry & Jones, 2017; Segura et al., 2020). It is especially important to note that Segura et al. (2020) found that standard forest riparian buffers did not significantly mitigate for reduced flows in harvested sub-basins, thus requiring an examination of whole watershed management on the ability of streams to meet state and federal

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standards for water quality and endangered species conservation. There is also the potential that having a larger proportion of the forested watersheds of the upper Chehalis Basin in older forests would dampen the frequency and intensity of floods, though this needs the benefit of the modeling effort that is planned.

Having increased older forest in the upper and lower Basin would improve overall habitat conditions and connectivity for several wildlife species. Such an outcome would store more carbon, thus contributing local solutions to mitigating climate change. We recognize that changes in practices like lengthening rotations on private lands would require voluntary financial incentives. Assessing how state and federal programs could accomplish adequate payment programs for longer rotations should be a part of broader solutions considered for meeting the purposes of the Chehalis Basin Strategy.

We recommend that the forest practices modeling work on peak and low flows be completed and incorporated into any subsequent analysis of a proposed dam, and used in the development of non-dam options for reducing flood damages and for restoring aquatic species.

### **Permitting & Cost-Benefit Analysis**

We are concerned to learn that the Corps released the NEPA EIS and the application for a (404) permit to the public at the same time, without making explicit separate processes for both the permit and the EIS. Regardless, it would appear the NEPA EIS document does not demonstrate required tests for a permit to be approved. The EIS does not offer adequate options for mitigation to known significant adverse impacts, the alternatives offered are essentially the same project, and the discipline report for water quantity and quality does not adequately describe the impacts of the construction of the FRE facility. We want to be clear; we do not believe the Corps should be approving any permits at this time, as the tests for any such permit have not been met. Furthermore, if the Corps seeks to properly meet the permitting standards, then there will need to be another more explicit permit public hearing process.

We realize that producing a cost-benefit analysis is not an obligatory action under NEPA guidelines. However, a massive landscape altering project like the FRE, deserves an honest attempt on the part of the Corps to offer the public a true framework for understanding what could be gained and lost if such a project is initiated. Finally, we feel the Corps should offer a cost-benefit analysis, even if not required, because if the Corps is going to approve a permit for the project or refine the draft EIS to be more robust, the Corps will need to be aware of the trade-offs taking place so they can properly educate the public on what a project like this truly costs. Given that dam projects have a history of cost overruns, understanding how the potential for higher than projected costs affects the public's willingness to begin construction of something that could end up costing them more than we originally agreed to.

### **Impacts on Aquatic Species, Ecosystem Processes, and Tribal Treaty Rights**

We did not undertake our own analysis of the adequacy of the DEIS's treatment of impacts to salmon, steelhead, other aquatic species nor the suite of aquatic and related terrestrial ecosystem



processes that would be affected by the dam. Several other groups have taken on that task. We are however very concerned about the facts that 1) the DEIS does identify significant and likely irreparable damages to aquatic species, semiaquatic species, the resident orca population and critical ecosystem processes and services; and 2) The Quinault Indian Nation identifies in their formal SEPA comments

([https://static1.squarespace.com/static/5ea74f37fc31534cf56f0946/t/5eb9c991e85fc52b2fef48b3/1589234071989/FINAL+QIN+Chehalis+DAM+DEIS+comment+5\\_11\\_2020.pdf](https://static1.squarespace.com/static/5ea74f37fc31534cf56f0946/t/5eb9c991e85fc52b2fef48b3/1589234071989/FINAL+QIN+Chehalis+DAM+DEIS+comment+5_11_2020.pdf)) several materially significant short-comings in the quality of the analysis, leading to an underestimate of the already large impacts identified (*Chehalis Dam DEIS Quinault Comments*, 2020). These analytical shortcomings should be rectified in a supplemental analysis, should a decision to proceed with additional work considering a dam be made.

We also note the Quinault Indian Nation's assertion that their treaty rights would be violated by proceeding with this project. In addition, the Chehalis Tribe has firmly rejected the notion of building a structure on such a culturally significant and life sustaining river. The peoples that have inhabited the Basin since time immemorial have rejected the notion of a dam on the Chehalis River, due to their connection to the land we feel it is imperative to listen to their voices and hear their concerns. Therefore, we could not support such an outcome when SEPA was released and the NEPA document has only reaffirmed and galvanized our initial response, that such an outcome is indeed, unacceptable.

## Conclusion

While we appreciate the effort that went into developing this NEPA DEIS, there are too many omissions and shortcomings to be able to use this document as a basis to approve the proposed project. We also fully understand that doing nothing in the face of future projected flooding in the Chehalis Basin is not an option. We strongly encourage the U.S Army Corps of Engineers to withhold any approval or permitting of the proposed FRE facility or FRO facility at this time.

We also strongly encourage the Corps and other federal partners to support the Chehalis Basin Board as they continue to develop a basin-wide local actions alternative that does not include the FRE/FRO facility. We applaud the multi-stakeholder approach suggested by the Governor that the Board is currently developing to realize an alternative to the FRE/FRO. Furthermore, we encourage them to continue to consider the input of as many stakeholders as possible, while developing a long-term strategy for reducing flooding impacts throughout the Basin and restoring aquatic ecosystems. The solutions are likely to require significant public funds so we also encourage the federal agency partners and Congress to support the state effort by considering increased investment in both finding alternative pathways and funding those solutions, which will likely involve adapting and moving human infrastructure, in addition to building wildlife underpasses at key locations across major highways in the Basin. Such investments (<https://www.nytimes.com/2020/05/18/opinion/coronavirus-unemployment-youth.html>) would also have a positive stimulus effect on the economy, which is sorely needed at this time, and likely for some time into the future given the Covid-19 situation (*The New York Times*, 2020). The scale of the issues may not allow Washington State to be able to solve the problems of flooding and aquatic habitat restoration on our own.

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Thank you for the opportunity to comment.

Paula Swedeen, Ph.D.

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Cascade to Olympics Program Coordinator  
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**Commenter:** Laurie Kerr  
**Affiliation:** Great Old Broads for Wilderness  
**Method of Comment:** Web  
**Date:** 11/13/20

## Comment

Thank you for the opportunity to provide comments on the NEPA DEIS for the proposed Flood Retention Expandable (FRE) and Flood Retention Only Facilities (FRO).

I am submitting my comments on behalf of the Cascade Volcano Chapter of the Great Old Broads for Wilderness (GOBW). GOBW is a national non-profit grassroots organization, headquartered in Durango, Colorado, that engages and inspires activism to preserve and protect wilderness and wild lands. Founded in 1989, GOBW is one of the few public land conservation organizations led by women. With more than 8,500 members and supporters across the nation, GOBW emphasizes local grassroots action. I am the leader of our local chapter located in Southwest Washington-Northwest Oregon. As a women-led organization, GOBW brings knowledge, leadership, and humor to the conservation movement to protect our last wild places on earth. GOBW empowers women to use democracy to defend our birthright—America’s public lands and waters—through education, advocacy, stewardship and fun. Members believe that wild places are valuable in their own right, and we respect the spirit and intent of national conservation legislation such as the National Environmental Policy Act, which purports using sound science as a basis for policy decisions. GOBW members hike, view plants and wildlife, enjoy the solitude of the public lands and waters, and volunteer for service projects along the Chehalis River. We reserve the Chehalis River Basin as a special place as we have just completed a stewardship project planting over 500 native trees along the Discovery Trail on the Chehalis River.

In the current climate change model we feel that the NEPA DEIS is inadequate. The draft fails to evaluate the changes most likely to occur from flooding and hydrology during flooding events. For example, the SEPA DEIS indicates a 30% increase in precipitation/flooding over time during to climate change, while the NOAA models indicate a 50% increase in rain events. The SEPA model underestimates the impacts to fish, people, wildlife, and ecosystems to flooding events. A supplemental NEPA DEIS is recommended which includes more accurate climate impact models.

The description of an “expandable” aspect of the FRE facility is also a cause for concern. The public is left without specific understanding of what this “expandable capacity” would be. What would the impacts of this “expandable” capacity be on the ecosystem and humans? It is unclear whether these factors were taken into consideration in proposing the FRE facility. An analysis of the additional environmental impacts needs to be included at this time, including how it purports to meet the requirements of NEPA.

## Chehalis NEPA EIS Public Comment Record

The DEIS is vague in its description of the post-project mitigation recommendations. One assumes that mitigation could be possible or adequate; however, one has to choose between an incomplete flood damage reduction project provided by the FRE facility and the loss of ecologically and culturally significant aspects of the environment. The NEPA DEIS suggests no alternatives to the FRE facility for flood control.

This lack of alternative is a concern to those residents who reside in the basin but would not be the benefactors of the FRE facility. They would be impacted by the dam and include members of the Chehalis and Quinault Tribes.

The impact to wildlife connectivity is another problem. The habitat surrounding the FRE, FRO, temporary reservoir, quarries, and the airport levee are critical [links](#) to wildlife corridors which serve to connect habitat areas between the Cascades, Olympics, Willapa, Hills and the coast (Gallo et al, 2020). By dissecting this habitat, it could potentially cause wide-scale mobility issues for a wide range of native land and semiaquatic wildlife. The connectivity impacts on wildlife such as cougar, bear, fisher, wolf, and deer is not clearly addressed in the DEIS. Further analysis of the permanent loss of habitat connectivity for smaller terrestrial and semi-aquatic species is needed.

The NEPA DEIS also fails to consider the impacts of forest and hydrology practices. The benefits of having older forests in the upper and lower Basin would improve overall ecosystem health and wildlife connectivity. The added benefit of carbon sequestration in older growth forests would help in decreasing the frequency and intensity of flooding in the region. Another consideration is improving the forest practices such as lengthening the rotations on private lands and providing payment programs for incentivizing these programs.

The DEIS also does not assess the irreparable damages of the project on aquatic species, semiaquatic species, and the Southern Resident Orca population. Furthermore, the Quinault Indian Nations have inhabited the Basin for years and oppose the project due to their connection to the land which is culturally significant and life sustaining for the tribes.

Because the DEIS does not address many of the issues, I cannot support the project at this time. I agree that flooding in the Basin is an immediate and serious issue and needs a plan that is based on future climate models, decreases flooding, and reduces impacts on fish, wildlife, wetlands, water quality, and cultural resources. I strongly urge the U.S. Army Corps of Engineers to withhold any approval or permitting of the FRE facility or FRO facility currently.

I would also strongly urge the Corps and other federal partners to support the Chehalis Basin Board as they continue to develop a local action alternative that does not include the FRE/FRO facility. We praise the multi-stakeholder approach suggested by the Governor that the Board is currently developing to realize an alternative to the FRE/FRO. Furthermore, we encourage them to continue to consider the input of as many stakeholders as possible, to come up with a long-term strategy for reducing flooding

## **Chehalis NEPA EIS Public Comment Record**

throughout the Basin and restoring aquatic ecosystems. The solutions are likely to require significant public funds. We also encourage the federal agency partners and Congress to support the effort by considering increased investment in finding alternatives for funding solutions, as these solutions may also involve adapting and moving human infrastructure as well as creating wildlife underpasses across major highways in the Basin. Such investments would also have a positive effect on the local economy. The scale of these problems may not be obtainable for Washington State alone and may require economic assistance from the federal government.

**Commenter:** Linda Buckley  
**Affiliation:** Great Old Broads for Wilderness  
**Method of Comment:** Web  
**Date:** 11/16/2020

## Comment

I'm very concerned about the flood damage reduction facility proposed to help control the intermittent severe flooding of the Chehalis River basin.

- 1) We need a much more thorough evaluation through a supplemental Environmental impact survey and non-FRE local action alternative currently being pursued by the Chehalis Basin Board.
- 2) More climate modeling is required for an accurate predictor of the impact of climate change on this environment.
- 3) Further analysis of the "expandable" aspect of the facility.

As a member of the CASCADE VOLCANOES Chapter of the 30 year old national non-profit "Great Old Broads for Wilderness" and in partnership with the Chehalis River Basin Land Trust, I recently participated in a 3 day tree planting stewardship project along the Chehalis River Discovery Trail to help restore wetlands. The proposed removal of trees from more than 340 acres of wetland and stream buffers would make the area more vulnerable to erosion and invasive plant species. Additionally, the levee improvements at the airport would impact 4.54 acres of wetlands and 16.61 acres of wetland buffers.

Operation of the facility would negatively impact Fish-especially the spring-run Chinook. The local Indian tribes need to maintain the integrity and environmental health of this area for both economic and spiritual reasons.

Please take the time for further study which is critical before going ahead with this costly project causing long term permanent damage to aquatic species, tribes and other local residents.

Thank you for soliciting these comments and taking my concerns seriously.



November 12, 2020

Brandon Clinton  
EIS Project Manager  
United States Army Corps of Engineers

and

Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, OR 97219  
(Submitted via the Chehalis Basin Strategy Website)

RE: Application Chehalis River Basin Flood Control Zone District (NWS-2014-1118)

Dear Mr. Clinton,

On behalf of the Salish Alliance, I thank you for the opportunity to provide comments on this important National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) for the Chehalis River Basin Flood Damage Reduction Project.

The Salish Alliance was formed in 2020 in response to Climate shift and the need for immediate community adaptation in the Pacific Northwest. We are a group dedicated to responding to climate change with action strategies that serve Pacific Northwest communities regardless of age, creed, race, or economic status.

In our view, the proposed action and supporting documentation is fundamentally flawed from economic, environmental, and procedural points of view. Each of these elements leads us to believe the project will fail in its stated objective to attenuate flood damage and will squander critical resources needed to meet challenges in climate shift within this basin.

Foremost, the project makes little economic sense. In our review of supporting documents we understand fewer than 1500 structures will benefit from flood reduction resulting from the proposed action. In absence of a robust analysis of economic impacts, which the DEIS fails to conduct, we can only

conclude the local benefits will be far less than the projected \$650 million to \$1 billion dollar price tag projected by project consultants. Due to the project's scope, we believe the NEPA documentation should have offered a cost-benefit analysis. Other alternatives, such as local floodplain actions, should have been analyzed more thoroughly to weight relative costs to benefits. We believe such approaches would benefit to community, climate action and the environment at a lower public investment than either of the proposed alternatives.

From an environmental perspective the proposed project alternative is catastrophic. The Chehalis River Basin is one of Washington's most important salmon producers. Some years, it is the leading coho salmon producer in the state. Remaining a keystone food source for southern resident orca, no less, an important cultural resource for local Salish tribal communities. It is inconceivable to us that a project would be proposed flooding and blocking access to important spawning and rearing grounds for species of concern such as coho, chinook and steelhead, both above and below the proposed dam site. The dam itself, as many before it, would be an out-right fish killer. Resulting in a direct taking of an important economic and cultural food source for local communities.

To make matters worse, the professed benefits of this project are suspect on all accounts. Especially when viewed through the lens of climate change and adaptation. The DEIS fails to provide the most recent climate data from which to base its analysis and projections. The DEIS also fails to account for any carbon footprint created by either of the proposed alternatives. The Salish Alliance strongly believes such an accounting is absolutely needed for all projects of this magnitude and public investment. It is conceivable the carbon cost alone of building such an epitaph far outweighs any seasonal flood storage and property protection the project professes to provide.

Procedurally, the DEIS also fails to meet fundamental requirements of NEPA and does not justify issuance of a CWA (Clean Water Act) 404 permit because it:

- Relies on a very narrow purpose and need statement, which preordains consideration of only two alternatives.
- Fails to demonstrate the proposed Project will meet the stated purpose and need.
- Grossly understates and/or inadequately characterizes adverse environmental impacts, because credible science is not used to support analysis of impacts, especially in the case of the failure to include future climate change impacts in the analysis.
- Fails to identify and/or discuss any mitigation for unavoidable adverse environmental impacts.
- Does not analyze the least-environmentally-damaging approach to accomplish the reduction of flood damage in the Centralia-Chehalis area; and
- Fails to acknowledge, quantify, or discuss the adverse environmental impacts this Project will have on the reserved Treaty rights and sovereign interests of area Tribes.

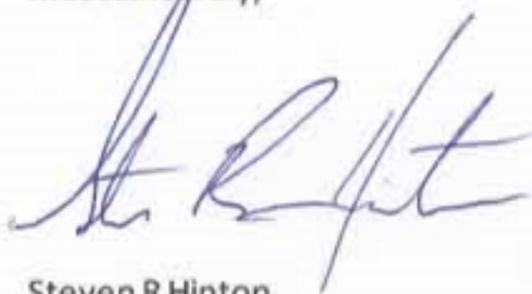
Evidence supporting these comments can be found in submitted Comment Matrices, along with accompanying Technical Review Memos, and Addendums to Memos provided in support the Quinault Nation's comment letter prepared in response to the Washington State Department of Ecology's State Environmental Policy Act ("SEPA") DEIS. These would include:

- Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Addendum to Cascade of FRE (Flood Retention Expandable) Ecosystems Effects Technical Memo
- Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts
- Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review
- Technical Report: Salmon Population Modeling and Aquatic Species for the NEPA DEIS Evaluation of Flood Protection in the Chehalis Basin
- Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues
- Forest Practices Technical Analyses Review
- Socioeconomic Impact Analysis Review

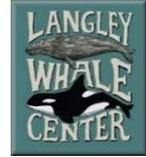
All such Comment Matrices, Technical Memos and Addenda, and their supporting documents are attached and incorporated by reference.

From the overwhelming line of evidence, we strongly believe the ACOE should not approve any permit at this time. The DEIS failed to provide adequate alternatives or address and define mitigation elements to satisfy protocols of the clean water act and therefore does not meet the basic tests required to approve permitting.

Most Sincerely,



Steven R Hinton  
Executive Director  
A Salish Alliance  
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*Connecting Whales and People  
in the Pacific Northwest*

11-17-2020

Brandon Clinton  
Corps EIS Project Manager  
*Submitted via online portal*

**Re: Chehalis River Basin Flood Damage Reduction Project NEPA Draft Environmental Impact Statement**

Thank you for the opportunity to comment on the Proposed Chehalis River Basin Flood Damage Reduction Project (Proposed Project) Draft Environmental Impact Statement (DEIS.) Orca Network is a non-profit organization dedicated to raising awareness of the whales of the Pacific Northwest and the importance of providing them healthy and safe habitats. Our education and outreach efforts include over 15,000 subscribers to our Whale Sighting Network, 160,000 Facebook members, and almost 30,000 annual visitors to our Langley Whale Center on Whidbey Island. We respectfully submit these comments on behalf of our staff and Board of Directors. We are writing to oppose the construction of a flood retention facility and associated temporary reservoir near Pe Ell, Washington, and we support the No Action Alternative in the DEIS. We recognize that flooding in the Chehalis Basin poses a serious risk to homes and livelihoods and we are sympathetic to those who have been impacted by past floods. However, the proposed flood retention facility and raising of levees along the river would only protect a small portion of residences and businesses in the Chehalis Basin, and this project presents an unacceptable risk to tribal culture, wildlife habitat, salmon, and Southern Resident orcas.

**Threats to the Chehalis Watershed**

The Chehalis River is the second largest river in Washington State and one of the only remaining free flowing rivers on the west coast. The Chehalis Basin is the largest watershed entirely within Washington, containing 180 lakes, ponds and reservoirs, and over 3,000 miles of rivers and streams, and supporting a wide variety of wildlife, including elk, waterfowl, birds, trout, lamprey, and the highest diversity of amphibian species in the state. <sup>1</sup> The Proposed Project would drown 6 miles of critical salmon and steelhead habitat, result in increased temperature and decreased dissolved oxygen and would permanently eliminate 11 acres of wetlands, 333 acres of wetland buffers, 17 miles of streams, 441 acres of stream buffers and 0.3 acres of the Chehalis River. Wildlife habitat would be degraded and noise and reduced nesting and breeding areas would significantly affect amphibians, marbled murrelets and other wildlife. <sup>2</sup>

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<sup>1</sup> Chehalis Basin Strategy Fish and Wildlife Fact Sheet

<sup>2</sup> Proposed Chehalis River Basin Flood Damage Reduction Project, 2020

### Threats to Chehalis Basin Salmon

The Chehalis Basin contains 31 salmonid stocks. None of these are currently listed as threatened or endangered under the U.S. Endangered Species Act (ESA) <sup>3</sup>, however salmon in the Chehalis Basin have seriously declined 50 to 80% due to overfishing, unregulated timber harvest, destruction of estuaries, wetlands and floodplains, and development without adequate fish passage.<sup>4</sup> The Ecosystem Diagnosis and Treatment Model estimates that the Basin's spring run Chinook could be functionally extinct by the end of the century unless action is taken, and climate change and future development are projected to impact aquatic species such as salmon through further degradation of habitat by affecting temperature and precipitation, reducing land and riparian cover, and increasing sediment.<sup>5</sup>

The Proposed Project poses a risk to these already declining salmon runs. A Washington Department of Fish and Wildlife (WDFW) report from December 2017 stated that "The Chehalis River basin above RM 108.2 supports spawning of wild spring Chinook, fall Chinook, Coho, and Steelhead, during most of the year from mid-September to mid-June. This area of the watershed is diverse enough to provide spawning and pre-spawn holding habitat for each of these four species. All four species of salmonids could be affected with the introduction of a dam that creates an inundation footprint the size of the flood retention flow augmentation dam alternative".<sup>6</sup> Another WDFW report from May 2018 stated that "valuable juvenile salmon and steelhead habitat, which is already limited in the Chehalis River, is likely to be negatively impacted by the construction of a dam and result in negative ramifications on the freshwater rearing portion of salmon and steelhead life cycles in this part of the river."<sup>7</sup>

The Proposed Project would also affect the genetic diversity of salmon between the upper and lower basin. Genetic diversity of salmon stocks is important for their productivity and resilience to environmental variation.<sup>8</sup> Chehalis spring-run Chinook are genetically distinct from fall-run Chinook<sup>9</sup>, and they experience harsher conditions due to earlier migration in the year. While fall-run Chinook spawn downstream of the proposed flood retention facility, spring-run Chinook spawn in the upper watershed, making them more susceptible to fish passage barriers.<sup>10</sup> The DEIS notes that there will be high impacts to spring-run Chinook in particular due to their small population size and few spawning areas, many of which are located in the area of the Proposed Project. Modeling shows that operation of the flood retention facility would reduce the population of spring-run Chinook to fewer than 20 fish by mid-century, "putting it at risk for permanent loss in this area."<sup>11</sup>

While the Washington SEPA DEIS incorporated climate change projections into its analyses, the NEPA DEIS failed to include climate change models and is unable to accurately predict future flooding scenarios in the Chehalis Basin, as well as impacts to salmon. Climate change can cause changes in precipitation, lower

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<sup>3</sup> <https://chehalisbasinpartnership.org>

<sup>4</sup> [www.chehalisleadentity.org](http://www.chehalisleadentity.org)

<sup>5</sup> Chehalis Basin Strategy, Aquatic Species Restoration Plan, 2019, pp. 19-20, 211.

<sup>6</sup> Ashcraft, S., C. Holt, M. Zimmerman, M. Scharpf, and N. Vanbuskirk. 2017. Final Report: Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2013-2017, FPT 17-12. Washington Department of Fish and Wildlife, Olympia, Washington.

<sup>7</sup> Winkowski, J.J., E.J. Walther, and M.S. Zimmerman. 2018. Summer riverscape patterns of fish, habitat, and temperature across the Chehalis River basin. Washington Department of Fish and Wildlife. Olympia, Washington. FPT 18-01.

<sup>8</sup> Crozier L.G. et al. 2008. Potential responses to climate change in organisms with complex life histories: evolution and plasticity in Pacific salmon. *Evol Appl.* 1(2):252-70. <https://doi.org/10.1111/j.1752-4571.2008.00033.x>; Utter F. et al. 1989. Genetic population structure of chinook salmon (*Oncorhynchus tshawytscha*), in the Pacific Northwest. *Bulletin of the United States Bureau of Fisheries.* 1989;87(2)

<sup>9</sup> Thompson et al. 2019. Run-type genetic markers and genomic data provide insight for monitoring spring-run Chinook Salmon in the Chehalis Basin, WDFW contract #18-11697.

<sup>10</sup> NEPA DEIS at 4.2.222

<sup>11</sup> *Ibid*

summer streamflow, and increasing water temperatures, which can decrease habitat, impede migration, and increase disease susceptibility and vulnerability to predation.<sup>12</sup> By not incorporating any of these climate change realities into the DEIS, the Corp has failed to accurately project future impacts to the Chehalis Basin salmonids, which would only be worsened by the Proposed Project.

### **Threats to Southern Resident Orcas**

The DEIS states that Southern Resident orcas may experience low impacts from the slight decreases in abundance of salmon, and that it is likely they would lose a small portion of their prey. Southern Residents are a highly endangered population and their future survival is dependent on abundant and available salmon throughout their range. Any decrease in salmon abundance will result in much more than a “low impact.”

Chinook salmon from the Chehalis River are part of the Washington Coast stock which is listed as a priority stock for the endangered Southern Resident orcas.<sup>13</sup> This genetically, acoustically, socially, and culturally distinct population of orcas was listed as endangered under Canada’s Species at Risk Act (SARA) in 2003 and under the U.S. Endangered Species Act (ESA) in 2005 but they are continuing to decline despite the protection and recovery actions initiated by these laws. The population is currently at just 74 animals, their lowest number in four decades.<sup>14</sup> Their main threats include prey availability, namely a decline in their primary prey, Chinook salmon; environmental contaminants, particularly bio accumulative organochlorines such as DDT and PCBs; and vessel effects and sound, as well as increased potential for oil spills and disease.<sup>15</sup> Of these threats, lack of prey throughout their range is widely recognized as the principal limiting factor in their recovery. Salmon depletion has led to changes in social structure, decrease in presence in their core summer feeding areas, an increase in stress hormones and a miscarriage rate of almost 70%.<sup>16</sup>

Data from the National Oceanic and Atmospheric Administration (NOAA) collected from satellite-tagging studies, dedicated surveys, and passive acoustic monitoring was included in the proposed revision of critical habitat for Southern Resident orcas to include their coastal range, and “prey species of sufficient quantity, quality, and availability” was identified as an essential habitat feature. This data establishes that all three pods in the Southern Resident population use the coastal waters of Washington year-round and continue to target Chinook as their primary prey.<sup>17</sup> NOAA data indicate that of the time Southern Resident orcas spend in coastal waters, approximately 50% is spent off the coast of Washington and this has been identified as a high-use foraging area for the population.<sup>18</sup>

The data also shows that Southern Resident orcas are feeding off Grays Harbor. A NOAA satellite tagging data blog post from April 30, 2015 shows that members of L Pod were off Grays Harbor for several days.<sup>19</sup>

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<sup>12</sup> Southern Resident Orca Task Force Final Report and Recommendations. November 2019.

<sup>13</sup> NOAA Fisheries and Washington Department of Fish and Wildlife 2018. Southern Resident Killer Whale Priority Chinook Stocks Report

<sup>14</sup> Population data from Center for Whale Research, [www.whaleresearch.com](http://www.whaleresearch.com)

<sup>15</sup> National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington

<sup>16</sup> Data from the Center for Whale Research; Shields, M.W. et al. 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (*Orcinus orca*).

<sup>17</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>

<sup>18</sup> Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data.

<sup>19</sup> Map and tagging data from Northwest Fisheries Science Center satellite tagging blog, per <https://www.usa.gov/government-works>



Figure 1 (above): Satellite-tagging data from 2015 shows movement between Grays Harbor and the Columbia River.<sup>20</sup>



Figure 2 (above): Map of proposed critical habitat for Southern Resident orcas, including the mouth of the Chehalis River.<sup>21</sup>

In 2018, Governor Inslee established the Southern Resident Orca Task Force. This two-year process resulted in 49 recommendations and a Washington state budget of over \$1 billion for orca recovery. In Executive Order 18-02: Southern Resident Killer Whale Recovery and Task Force, Governor Inslee stated “if Southern Residents were to become extinct, we would suffer an unacceptable loss to our environment, economy, and way of life. We would also lose an essential component of our marine ecosystem and an indicator of the health of our waters”<sup>22</sup> The Task Force recommendations resulted in “significant new investments, policies and regulatory initiatives to help recover Southern Residents”<sup>23</sup> The Proposed Project would be in direct conflict with the goals and desired outcomes of this effort.

<sup>20</sup> *Ibid*

<sup>21</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>

<sup>22</sup> Southern Resident Orca Task Force Report and Recommendations, November 2018.

<sup>23</sup> Southern Resident Orca Task Force Final Report and Recommendations. November 2019.

### Known impacts from Washington State dams

The effects of dams on river ecosystems are well documented and include disruptions to sediment and organic matter transport, changes in downstream water quality, energy flow and stream channel dynamics. Dams also block migration to upstream habitats and prevent salmon migration.<sup>24</sup> Some examples of this have been seen in past projects, including major dams that were constructed on the Elwha River and the lower Snake River. When the Elwha dam and the Glines Canyon dam were constructed they disconnected the upper watershed from the lower watershed. This disconnect lasted for almost a century and the ecological changes were disastrous for anadromous fish. 90% of the Elwha watershed was blocked from access by in-migrating fish, and the river and nearshore habitat became significantly degraded. Sediment, nutrients, and wood that provide key elements for salmon-rearing habitat were unable to travel downstream, becoming trapped behind the dams.<sup>25</sup> Inward and outward migration proved impossible for several salmonid species and some were extirpated. The populations that found any spawning success were reduced to just a mere fraction of what their historical numbers had been prior to the dams.<sup>26</sup> The Columbia and Snake river basins are important river systems that provide Southern Resident orcas salmon during different seasons throughout the year<sup>27</sup>, but a series of dams have decimated these once abundant salmon runs. The dams have resulted in salmon decreases due to habitat destruction, decreased river flow, increased water temperatures, altered sediment flow, and direct mortality due to turbines, bypass systems and sluiceways.<sup>28</sup> At the Lower Granite dam alone, wild Snake River spring/summer Chinook returns have declined by at least 60% since the late 1960s when the lower Snake River dams were built.<sup>29</sup>

The result of extirpated and threatened salmonids throughout the Pacific Northwest has severely impacted the fish-eating Southern Resident orcas. Though the Elwha and Glines Canyon dams were removed in 2011 and 2014, and the watershed and nearshore habitat continues to undergo restoration efforts, there are other dams, faulty floodgates, and failing culverts on salmon-producing rivers throughout their range that have ultimately contributed to this population's severe decline. As a result, Southern Residents have begun to exhibit shifts in the way, and times, they utilize the Salish Sea. 2019 was the first year on record when there was not a single inland sighting of Southern Resident orcas in June. In 2020 there was not an inland sighting throughout the month of May. Their use of this core summer habitat has been decreasing for several years and observations from the Center for Whale Research and Canada's Department of Fisheries and Oceans has shown them to be foraging off the coast during the summer months.<sup>30</sup> A recent paper from Orca Behavior Institute using sighting data from Orca Network and experienced observers showed that decreased spring usage of the Salish Sea habitat by Southern Residents correlates with declines in Chinook salmon from the Fraser River.<sup>31</sup> This shift in baselines from the interior waters of the Salish Sea to the outward coastal waters during the summer months means that Chinook salmon availability in those areas has never been more crucial. With the Chehalis being one of the last remaining free-flowing rivers that produces wild salmon stocks, diminishing these stocks by barricading it is adding another nail in the coffin for both wild salmon and the Southern Resident orcas that rely on this food source.

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<sup>24</sup> Pess, et al. 2008. Biological Impacts of the Elwha River Dams and Potential Salmonid Responses to Dam Removal.

<sup>25</sup> *Ibid*

<sup>26</sup> *Ibid*

<sup>27</sup> NOAA Fisheries and Washington Department of Fish and Wildlife 2018. Southern Resident Killer Whale Priority Chinook Stocks Report

<sup>28</sup> Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. *N. Am. Journal of Fisheries Management* 22:35–51; NMFS. 2013. ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead; UCSRB (Upper Columbia Salmon Recovery Board). 2007. Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan; NMFS. 2017. Recovery Plan for Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead.

<sup>29</sup> NOAA 2018. FAQs Southern Resident killer whales & Columbia/Snake River Chinook salmon stocks

<sup>30</sup> Center for Whale Research Encounters. Available: <https://whaleresearch.wixsite.com/2019encounters>. Christopher Dunagan, Puget Sound Blogs "Three more orca deaths take census count down to 73 Southern Residents".

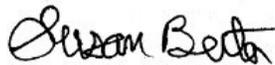
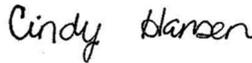
<sup>31</sup> Shields, Monika W. et al, 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey.

## Conclusion

Opposition to the Proposed Project is growing, as organizations and agencies are encouraging different alternatives. At its May 20th meeting, the Chehalis Basin Board voted to explore other options for flood reduction and mitigation.<sup>32</sup> On July 22nd, Washington's Governor Inslee sent letters to the Chehalis Basin Board and Washington Departments of Ecology and Fish and Wildlife, directing them to work with local tribes to develop non-dam alternatives, and to pause the EIS process for the remainder of the year.<sup>33</sup> In a new flood policy, the Federal Emergency Management Agency has taken steps to encourage environmentally friendly features such as wetlands instead of building seawalls and levees.<sup>34</sup>

Orca Network is opposed to the construction of a flood retention facility and associated temporary reservoir in the Chehalis River. We stand with the Quinault Nation and the Confederated Tribes of the Chehalis Reservation in their opposition to this project, which would impact their cultural way of life. Flooding in the Chehalis River basin has been occurring for centuries and is part of the watershed's natural ecological process. Impacts from flooding have become more severe in recent years, likely due to habitat destruction from logging and development.<sup>35</sup> We are sympathetic to the communities living and working in the Chehalis Basin who have been physically and emotionally impacted by floods, but this plan poses unacceptable risks. We urge the Corps to adopt the No Action Alternative and allow Washington State to develop an alternative comprehensive plan that will mitigate flood damage throughout the Chehalis Basin without further endangering salmon and orcas, and impacting tribal culture.

Sincerely,

Susan Berta, Executive Director [susan@orcaneetwork.org](mailto:susan@orcaneetwork.org)

Howard Garrett, Board President [howard@orcaneetwork.org](mailto:howard@orcaneetwork.org)

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<sup>32</sup> Dodgson, C. "Office Of The Chehalis Basin Board to Look at Flood Reduction Options Other Than Dam" *The Daily Chronicle*, May 8, 2020. [http://www.chronline.com/news/office-of-the-chehalis-basin-board-to-look-at-flood-reduction-options-other-than-dam/article\\_b63ce07a-9148-11ea-984d-338187b4f242.html](http://www.chronline.com/news/office-of-the-chehalis-basin-board-to-look-at-flood-reduction-options-other-than-dam/article_b63ce07a-9148-11ea-984d-338187b4f242.html)

<sup>33</sup> <https://www.kuow.org/stories/inslee-puts-proposed-chehalis-river-dam-on-hold-calls-for-non-dam-options>

<sup>34</sup> <https://www.eenews.net/stories/1063716253>

<sup>35</sup> "Did Development, Logging Set the Stage for Disaster?", *Seattle Times*, December 9, 2007

**Commenter:** Janet Strong  
**Affiliation:** Grays Harbor Audubon Society  
**Method of Comment:** Web  
**Date:** 11/17/2020

## Comment

We incorporate by reference comments made by Quinault Indian Nation, Confederated Tribes of the Chehalis, Friends of Grays Harbor, Audubon Washington, Orca Network, Waterkeepers Alliance, South Sounds Sierra Club, Conservation Northwest, Citizens for a Clean Harbor, Center for Biological Diversity, Coast Salmon Partnership, Pacific Rivers, and Wild Steelhead Coalition. Grays Harbor Audubon Society completely opposes the construction of any dam, FRE or FRO on the Chehalis River upstream of the Town of Pe Ell. Any dam would spell disaster for runs of Chinook Salmon and Steelhead, both already in decline. A dam's construction phase would result in considerable disturbance of the area due to road construction, rock pit development and permanent destruction of 14 miles (7 miles of river, both shores) of healthy riparian forest. A dam would only partially protect the river shore from Pe Ell to Centralia plus portions of I-5, doing nothing to reduce flooding danger in all other parts (the majority) of the Chehalis basin. Yet the cost is extraordinarily high for citizens of WA, probably approaching one Billion dollars. The Chehalis River, already under a TMDL for temperature, will suffer a rise in temperature and increased sedimentation from flows through the denuded 7 miles upstream of the dam site. Wildlife, including sensitive, threatened and endangered species, will suffer great habitat loss. Species include golden eagles, bald eagles, marbled murrelets, songbirds, amphibians, and reclusive species like black bears and cougars, plus others. The NEPA DEIS fails to examine non-dam alternatives, even though NEPA is tasked with looking at all aspects including impacts of any projects. Non-Dam alternatives, instead of dams, FROs or FREs, could benefit the entire basin through projects on the five major rivers that enter the Chehalis and its many smaller tributaries. I-5 could be protected at critical points where floodwaters enter. The NEPA DEIS does not address any results of climate change, the effects of which are being felt worldwide. Any dam, FRO or FRE will ultimately endanger the town of Pe Ell, possibly due to an earthquake or dam wear and tear. Also totally unaddressed by either the SEPA DEIS or the NEPA DEIS are the bad forestry practices in the Wilappa Hills - the clear-cut logging on steep, highly erodible slopes, mid-slope roads, short harvest rotations which do not allow the development of root systems that can hold soil adequately, and large logging units. All these exacerbated the high flows, landslides and sediment loads involved in the 2007 floods, vastly increasing the damage to the river, people and property. Reducing flooding in the Chehalis Basin must not include dams but must involve restoration projects, reconnecting floodplains, reestablishing and enhancing wetlands, reforesting riparian zones and moving structures out of harm's way. It also must include stopping any more development in flood-prone areas and eliminating any destruction of already existing wetlands for any levee raising. Personal note: I live in the lower Chehalis River basin, and over 36 years have seen several catastrophic floods. I'm also familiar with several places where judicious restoration could reduce the impacts of future

## **Chehalis NEPA EIS Public Comment Record**

flooding. Many individuals and organizations stand ready to do just that, if provided the funding to do so.



Northwest Office  
1402 Third Avenue, Suite # 930 Seattle, Washington 98101  
tel 206.508.5474 www.defenders.org

November 17<sup>th</sup>, 2020

*Comments submitted electronically*

TO: Brandon Clinton  
Project Manager  
U.S. Army Corps of Engineers, Seattle District  
P.O. Box 3755  
Seattle, Washington 98124-3755

RE: Comments on National Environmental Policy Act Draft Environmental Impact Statement,  
Proposed Chehalis River Basin Flood Damage Reduction Project. Pub. No. 20-06-002

Dear Mr. Clinton,

Thank you for the opportunity to provide comments on the federal Draft Environmental Impact Statement (DEIS) on the proposed Chehalis River Basin flood damage reduction project. The following comments are submitted on behalf of Defenders of Wildlife (Defenders) in opposition to the proposed dam. The federal DEIS refers to this dam as a “flood retention facility,” but our comments will refer to the structure as a dam. Defenders submitted similar comments to the state Department of Ecology (Ecology) after they completed a state DEIS.<sup>1</sup> The comments below frequently reference the state DEIS, which provided a more robust and accurate assessment of the project than the federal DEIS did.

We urge the U.S. Army Corps of Engineers (USACE) to adopt a No Action Alternative. The proposed dam would not address flooding concerns and would cause severe ecological damage. We do not see a role for USACE in addressing flooding in the Chehalis Basin and request that the agency deny the Department of the Army (DA) authorization permit to construct the proposed dam. While we support USACE adopting a No Action Alternative, we still strongly encourage other state and federal agencies to work collaboratively with tribal governments to develop solutions that address flooding in the basin without a dam. This includes reforestation, re-establishing flood plain function, and restoring wetlands.

Defenders is a national non-profit conservation organization with over 1,800,000 members and supporters nationwide, including more than 24,000 members and supporters in Washington state. Defenders is a science-based advocacy organization founded in 1947 focused on conserving and restoring native species and the habitat upon which they depend. Defenders has a long history of

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<sup>1</sup> The state DEIS, completed by the Department of Ecology, is available at:  
<https://fortress.wa.gov/ecy/publications/documents/2006002.pdf>

The state DEIS is referenced several times in this comment letter because, unlike the federal EIS, the state analysis included climate change models, providing a more accurate analysis of projected impacts from the proposed dam.

contributing to agency-led efforts to effectively manage natural resources and habitat without adversely impacting imperiled species.

Flooding in the Chehalis Basin poses a serious risk to residents in the area, and reducing the impact of flooding is a critical goal for the state. As the state and federal governments explore various options to reduce flood risks, it is important that actions taken do not jeopardize the wildlife and natural resources that make southwest Washington so unique. As was clearly stated in both the state and federal DEIS, and noted in our comments below, the proposed dam would result in severe and irreparable harm to numerous wildlife species, habitat, and ecological processes. Mitigation actions are ill-defined and implementation of mitigation plans is uncertain because they may not be technically feasible or economically practicable.

### **The Federal DEIS is Fundamentally Flawed and Ignores Tribal Treaties**

In the entire DEIS, climate change is only mentioned as a topic that members of the public expressed concern about during the scoping period. It is clear that USACE ignored the reality of anthropogenic climate change when developing the federal DEIS, making it a fundamentally flawed document with little to no value. USACE intended to look at impacts from the project between the years 2030 to 2080. Without incorporating climate change into its models, USACE is unable to accurately predict flooding frequency or severity over this time period. It is also unable to accurately predict the full impacts of the dam to sensitive species and habitat because the agency did not include climate change when assessing cumulative impacts. Entire sections of the federal DEIS are inaccurate and unhelpful because of this basic omission.

The federal DEIS also did not mention that the Quinault Indian Nation, which has reserved treaty rights in the Chehalis Basin, has publicly stated their opposition to the proposed dam because of the projected impact it will have on the tribe's fishing rights and cultural resources.<sup>2</sup> The federal DEIS did mention that the Quinault Nation withdrew as a cooperating agency and that the Chehalis Tribe did not participate in the federal DEIS process. This means that tribal consultation did not occur and the U.S. Government does not have consent or permission to advance this project.

Salmon and their habitat are jointly managed by federally recognized tribes, the state of Washington, and the Federal Government. The Quinault Nation signed the 1856 Treaty of Olympia with the U.S. Government, retaining their right to harvest salmon and other resources in exchange for millions of acres of land. No action that impacts salmon and other treaty resources should ever be enacted without the full and free consent of the affected tribes and resource co-managers. By advancing this dam, despite clear and direct opposition from a federally recognized tribal co-manager, USACE is likely violating the 1856 Treaty of Olympia. Should the dam be approved, it will likely result in litigation.

### **The Proposed Dam Is Likely to Drive Chehalis Basin Salmon Runs to Extinction.**

The Chehalis River is one of the last, undammed, large rivers left in Washington and supports several salmon runs. None of these are currently listed under the Endangered Species Act (ESA), though salmon abundance has declined by 80% throughout the Chehalis Basin over the last 30

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<sup>2</sup> Lynda V. Mapes. April 16<sup>th</sup>, 2020. Seattle Times: Quinault Indian Nation opposes new dam on Chehalis, seeks alternatives. Available at: [https://www.seattletimes.com/seattle-news/environment/quinault-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/?utm\\_source=referral&utm\\_medium=mobile-app&utm\\_campaign=ios](https://www.seattletimes.com/seattle-news/environment/quinault-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/?utm_source=referral&utm_medium=mobile-app&utm_campaign=ios)

years.<sup>3</sup> In the state DEIS, Ecology correctly reported that the proposed dam on the Chehalis River would have severe and unavoidable harm on the basin's chinook and coho salmon and steelhead.<sup>4</sup>

A previous report about the proposed dam from the Washington Department of Fish and Wildlife (WDFW), released in December 2017, stated that "The Chehalis River basin above RM 108.2 supports spawning of wild spring Chinook, fall Chinook, Coho, and Steelhead, during most of the year from mid-September to mid-June. This area of the watershed is diverse enough to provide spawning and pre-spawn holding habitat for each of these four species. All four species of salmonids could be affected with the introduction of a dam that creates an inundation footprint the size of the flood retention flow augmentation dam alternative."<sup>5</sup> Another WDFW report from May 2018 stated that "valuable juvenile salmon and steelhead habitat, which is already limited in the Chehalis River, is likely to be negatively impacted by the construction of a dam and result in negative ramifications on the freshwater rearing portion of salmon and steelhead life cycles in this part of the river."<sup>6</sup>

While the federal DEIS did not incorporate climate change into its assessment, USACE still found that the proposed dam would have devastating impacts. USACE estimates that during construction (which would last up to 5 years) "overall fish passage rates would be substantially reduced compared to existing conditions. This is especially true for upstream passage of adults through the trap-and-transport facility."<sup>7</sup> This could push already small run sizes to extinction, especially spring chinook. USACE estimates that dam construction would reduce the spring chinook population to just twenty fish.<sup>8</sup> Lamprey may also go extinct during dam construction because the dam applicant does not plan to facilitate adult passage via the trap-and-transport facility for lamprey. If spring chinook and lamprey cannot adequately access spawning grounds for up to five years, they are likely to go extinct in the Chehalis Basin, which further violates treaties with tribes.

Once the dam is completed, it will continue to impact salmonids. USACE estimates that when the fully constructed dam closes its gates, the creation of the temporary reservoir would result in 100% mortality for salmon eggs and fry above the dam due to sedimentation and extensive habitat change. Similarly, once the gates of the dam are open, wildlife downstream will be impacted by sedimentation and turbidity. On page 134 of the federal DEIS, USACE incorrectly claims that, "Impacts to aquatic species from temporary turbidity increases would be minor because they would be relatively infrequent." As stated earlier, by not incorporating climate change into its models, USACE cannot accurately predict the flooding frequency or severity in the Chehalis Basin. Under various climate models, experts predict flooding to increase in both frequency and severity, thus magnifying the negative impacts both up- and downstream of this dam. USACE does correctly

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<sup>3</sup> Lynda V. Mapes. April 16<sup>th</sup>, 2020. Seattle Times: Quinault Indian Nation opposes new dam on Chehalis, seeks alternatives. Available at: [https://www.seattletimes.com/seattle-news/environment/quinault-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/?utm\\_source=referral&utm\\_medium=mobile-app&utm\\_campaign=ios](https://www.seattletimes.com/seattle-news/environment/quinault-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/?utm_source=referral&utm_medium=mobile-app&utm_campaign=ios)

<sup>4</sup> State DEIS at page 83.

<sup>5</sup> Ashcra, S., C. Holt, M. Zimmerman, M. Scharpf, and N. Vanbuskirk. 2017. Final Report: Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2013-2017, FPT 17-12. Washington Department of Fish and Wildlife, Olympia, Washington

<sup>6</sup> Winkowski, J.J., E.J. Walther, and M.S. Zimmerman. 2018. Summer riverscape parameters of fish, habitat, and temperature across the Chehalis River basin. Washington Department of Fish and Wildlife. Olympia, Washington. FPT 18-01.

<sup>7</sup> Federal DEIS at page 129

<sup>8</sup> Federal DEIS at page 132, table 4.5-4

note that the dam will increase water temperatures in the reservoir, potentially to lethal levels for salmon,<sup>9</sup> but the impacts are likely underestimated because climate change was, once again, not factored into this analysis.

It is also unclear how USACE calculated the survival rates for juvenile salmon.<sup>10</sup> Does this rate factor in the decrease travel rate of juvenile salmon due to decreased river currents from the dam? Does it factor increased predation that results from this slowed travel rate? Does it factor in increased water temperatures on both juvenile and adult survival? While all of these issues are noted in the federal DEIS, it is unclear if (or how) any of them were incorporated into the reported survival rates. Importantly, without incorporating in the additional impacts of climate change on salmon mortality (both in fresh water and marine environments), USACE is unable to provide an accurate or useful prediction of the cumulative impact the dam would have on salmon populations.

While none of the salmon runs found in the Chehalis Basin are currently listed under the ESA, the proposed dam would likely prompt ESA-listing petitions for these dwindling salmon runs. And as is noted below, southern resident orcas are ESA-listed and would be impacted by this proposed project

### **Impacts to Salmon Further Push Southern Resident Orcas to Extinction.**

Given that the dam will impact salmon runs on the Chehalis River, the dam will also negatively impact highly endangered southern resident orcas. While the state DEIS clearly noted this connection,<sup>11</sup> USACE failed to fully or adequately assess the impact of this project on this highly endangered group of orcas. Unfortunately, this is not the first time that USACE has incorrectly assessed the impacts dams have on salmon runs important to southern resident orcas.<sup>12</sup>

With only 74 individuals in the wild, the southern residents are one of the most endangered wildlife populations in the United States. While these orcas are struggling to survive for many reasons, the most significant is the scarcity of their primary prey: chinook salmon.<sup>13</sup> Pacific salmon have now been extirpated from at least 40% of their historic habitat, and populations return at less than 3% of their historic numbers each year.<sup>14</sup> The development and alteration of watersheds, estuaries, and riparian environments is one of the primary causes of their decline, and climate change impacts are expected to cause an additional loss of 22% of current salmon habitat.<sup>15</sup> Protecting and

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<sup>9</sup> Federal DEIS at page 134

<sup>10</sup> Federal DEIS at page 129, table 4.5-3

<sup>11</sup> State DEIS at page 76.

<sup>12</sup> During the Columbia River Systems Operations (CRSO) EIS comment period, USACE continuously ignored objective, peer-reviewed literature about the importance of salmon in the Columbia Basin (particularly Snake River spring chinook salmon) to southern resident orcas. This is despite extensive comments from Defenders and other organizations with recommended bibliographies.

<sup>13</sup> NOAA Biological Report, 2019. 84 Fed. Reg. at 49,215; National Marine Fisheries Service, West Coast Region, Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales, Draft Biological Report at 7-8 (Sept. 2019)

<sup>14</sup> Lackey, R.T. 2000. "Restoring Wild Salmon to the Pacific Northwest: chasing an illusion?" pp. 91-145 in "What We Don't Know about Pacific Northwest Fish Runs? An Inquiry into Decision-Making." P. Koss and M. Katz, editors. Portland State University, Portland, Oregon; Levin, P. and M. Schiewe. 2001. "Preserving salmon biodiversity." *Am. Sci.* 89, 220-227.

<sup>15</sup> USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C.

restoring salmon habitat throughout the range of the southern residents will be essential to ensuring the whales have adequate sources of food throughout the year.

Data from geo-tagged orcas show that all three pods spend time foraging for salmon off the west coast in the spring and winter.<sup>16</sup> During this time, the southern residents spend a considerable amount of time around Grays Harbor and at the mouth of the Columbia River foraging for salmon as they return to spawn in the Chehalis and Columbia River Basins.<sup>17</sup> Using this information, NOAA Fisheries and WDFW assessed the relative importance of various salmon runs to the southern residents. That analysis identified Washington's coastal spring and fall chinook salmon runs (which include those that spawn in the Chehalis Basin) as the 11<sup>th</sup> and 12<sup>th</sup> highest priority salmon runs for orcas, respectively.<sup>18</sup>

Declining salmon runs along the coast have been linked to increased orca mortality and decreased fecundity.<sup>19</sup> Between October and May, when the southern residents are primarily hunting for salmon along the west coast, the southern residents appear much thinner.<sup>20</sup> The population has a 69% pregnancy failure rate, which has been linked to a lack of sufficient coastal spring chinook salmon to support pregnant mothers.<sup>21</sup> Constructing a dam on the Chehalis River would accelerate the decline of the southern residents, pushing them closer to extinction.

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Stewart (eds.)). U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018. See *Chapter 24: Northwest*

<sup>16</sup> J. Acoust. Soc. Am., Vol. 134, No. 5, November 2013, Hanson et al.: Killer Whale Acoustic Recorder Occurrence, 3486. Available at: <http://oceanwidescience.org/cms/wp-content/uploads/2014/12/Hanson-et-al-2013.pdf>

Southern Resident Killer Whale Satellite Tagging. Available at:

[http://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite\\_tagging/blog.cfm](http://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog.cfm)

<sup>17</sup> Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N00070-17-MP-4C419. 8 January 2018. 33 p.

<sup>18</sup> NOAA Fisheries West Coast Region and Washington Department of Fish and Wildlife. 2018. Southern Resident Killer Whale Priority Chinook Stocks Report. June 22, 2018. Available at: [https://archive.fisheries.noaa.gov/wcr/publications/protected\\_species/marine\\_mammals/killer\\_whales/recovery/srkw\\_priority\\_chinook\\_stocks\\_conceptual\\_model\\_report\\_list\\_22june2018.pdf](https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report_list_22june2018.pdf)

<sup>19</sup> Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk. 2005. "Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (*Orcinus orca*) in British Columbia." Fisheries and Oceans; Ford J.K.B et al. 2010. "Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator?" *Biology Letters*, 6:139–142; Ward E.J, E.E. Holmes, and K.C. Balcomb. 2009. "Quantifying the effects of prey abundance on killer whale reproduction." *Journal of Applied Ecology*, 46: 632–640

<sup>20</sup> Fearnbach, H. et al. 2018. **"Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales."** *Endang Species Res* 35:175-180. <https://doi.org/10.3354/esr00883>; Wasser S.K. et al. 2017. "Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (*Orcinus orca*)." *PLoS ONE* 12(6): e0179824, <https://doi.org/10.1371/journal.pone.0179824>

<sup>21</sup> Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk. 2005. "Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (*Orcinus orca*) in British Columbia." Fisheries and Oceans; Ford J.K.B et al. 2010. "Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator?" *Biology Letters*, 6:139–142; Ward E.J, E.E. Holmes, and K.C. Balcomb. 2009. "Quantifying the effects of prey abundance on killer whale reproduction." *Journal of Applied Ecology*, 46: 632–640

### **Clear-Cutting for the Dam May Permanently Impact Marbled Murrelets and Exacerbate Flooding.**

The federal DEIS notes that 485 acres would be clear-cut in order to remove trees that would be impacted by the temporary reservoir created by the dam.<sup>22</sup> However, the full extent of habitat destruction caused by the dam is likely to be 847 acres, which is the maximum extent of the temporary reservoir.<sup>23</sup> Defenders is concerned that the construction of this dam is being used opportunistically to grant timber companies access to harvest trees that are currently protected by riparian management regulations.

The removal of these trees is anticipated to negatively impact wildlife, including endangered marbled murrelets. The riparian areas that would be impacted are currently protected and developing into mature trees, which provide habitat for marbled murrelets.<sup>24</sup> Construction of the dam would result in the permanent loss of this habitat.<sup>25</sup> Because murrelets depend on large and old trees for nesting and travel corridors, it is extremely difficult to either fully or adequately mitigate the loss of their habitat.

Ironically, clear-cutting large sections of the Chehalis Basin will only further exacerbate the impacts of flooding. Trees not only sequester and store carbon dioxide from the atmosphere, they are also extremely efficient in absorbing rainwater and stabilizing slopes during heavy rain events. Instead of destroying over 800 acres of maturing forests, the state should be expanding protections for these ecosystems and accelerating restoration efforts to combat and adapt to climate change.

### **The Benefits of the Dam Fail to Justify the Risks and Projected Damage.**

According to the state DEIS, fewer than half of all structures in the Chehalis Basin predicted to be impacted by flooding are expected to be protected by the proposed dam.<sup>26</sup> The state DEIS also notes that Interstate-5 and other major highways would not be fully protected from flooding, and closures of the road are still anticipated during a catastrophic flood.<sup>27</sup> Given that climate change will further exacerbate the frequency and severity of flooding in the Chehalis Basin, Defenders is concerned that the dam will, at best, provide a partial near-term solution that will only exacerbate flooding for future generations.

Previous flooding events have led many researchers to point to both expanding development in floodplains and intensive, industrial logging as major contributing factors to the severe flooding impacts in the Basin.<sup>28, 29</sup> Construction of the dam may give a false sense of security and encourage more development and logging, which will only further exacerbate the problem and further

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<sup>22</sup> Federal DEIS at page 144

<sup>23</sup> State DEIS at page 21.

<sup>24</sup> State DEIS at page 88.

<sup>25</sup> Id.

<sup>26</sup> State DEIS at page 118.

<sup>27</sup> State DEIS at page 51.

<sup>28</sup> Lynda V. Mapes. December 9<sup>th</sup>, 2007. Seattle Times: Did development, logging set the stage for disaster? Available at: <https://archive.seattletimes.com/archive/?date=20071209&slug=flood09m>

<sup>29</sup> Hal Bernton and Justin May. July 13<sup>th</sup>, 2008. Seattle Times: Logging and landslides: What went wrong? Available at: <https://www.seattletimes.com/seattle-news/logging-and-landslides-what-went-wrong/>

minimize the value of the dam. The total capital cost of the dam is estimated to be \$628 million,<sup>30</sup> but the impact to ecosystem services and wildlife populations significantly increase the costs.

### **Mitigation Efforts Are Unlikely to Fully Offset Damage Caused by the Dam**

Despite the severe impacts this dam will have, the dam applicant has failed to demonstrate that they are able to fully offset and mitigate the damage this dam would do to fish and wildlife, ecosystems, water quality, and tribal treaty resources. While we appreciate that the applicant submitted a framework, it is extremely vague and lacks any level of detail to instill confidence in the applicant's ability to complete the proposed mitigation. Where would these mitigation actions occur? Does the applicant have jurisdiction and authority to implement these actions? What dams and culverts do they propose removing? Will the applicant bear all the costs to implement this plan? What are the total benefits of these actions compared to the impacts of the proposed dam (e.g. will the mitigation plan sustain wildlife populations or just slow their decline towards extinction)? Without greater clarity, the mitigation framework is meaningless.

USACE and the applicant offer no assurances that the applicant is even capable of implementing these actions, nor do we know when these actions will take place. The federal DEIS notes that the most severe, negative impacts to fish and wildlife will be during the five years of the dam's construction. If mitigation measures are not implemented until after dam construction, many species impacted by the dam may be functionally extinct before any mitigation work begins. It is also extremely unclear that any level of mitigation proposed by the applicant will be able to offset the irreparable harm this project will have on tribal communities and treaty-protected resources.

Defenders is also increasingly concerned about both USACE's and Ecology's ability to effectively monitor compliance at dams. Earlier this year, a whistleblower alerted both agencies and the public that the owner of Electron Dam on the Puyallup River was illegally using artificial turf on-site while the dam was being updated to provide greater fish passage. As a result, miles of the Puyallup River were polluted with rubber pellets, which is toxic to salmon.<sup>31</sup> Both USACE and Ecology are involved with the permitting and oversight of this recent construction at Electron dam, yet neither agency was aware of this clear and substantial violation. This incident on raises concerns about both agencies' ability to adequately ensure project applicants and dam owners are obeying the law and protecting public resources.

### **Assessment of Environmental Justice is Insufficient**

In section 5.11 of the federal DEIS, "Environmental Justice," USACE draws inaccurate conclusions, claiming that the dam may have positive environmental justice benefits because it would reduce the frequency and severity of flooding impacting lower-income community blocks. This conclusion is extremely flawed for several reasons.

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<sup>30</sup> Lynda V. Mapes. April 16<sup>th</sup>, 2020. Seattle Times: Quinault Indian Nation opposes new dam on Chehalis, seeks alternatives. Available at: [https://www.seattletimes.com/seattle-news/environment/quinault-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/?utm\\_source=referral&utm\\_medium=mobile-app&utm\\_campaign=ios](https://www.seattletimes.com/seattle-news/environment/quinault-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/?utm_source=referral&utm_medium=mobile-app&utm_campaign=ios)

<sup>31</sup> Lynda V. Maps. August 28<sup>th</sup>, 2020. Rubber debris litters miles of Puyallup River after artificial turf was used in dam project without permit. Available at: <https://www.seattletimes.com/seattle-news/environment/rubber-debris-litters-miles-of-puyallup-river-after-artificial-turf-was-used-in-dam-project-without-permit/>

First, the proposed dam is likely to provide only partial and temporary relief from some flooding impacts (at best), so the benefits to low-income communities would be minimal. The federal DEIS continuously draws incorrect conclusions about the benefits of the dam primarily because USACE did not incorporate climate change into its models, so it underestimated both flooding frequency and severity. Second, this section fails to mention the irreparable harm that this dam would have on tribes in the region. The Quinault Nation has publicly stated their clear opposition to the proposed dam. The impact the dam would have on salmon and lamprey would not only violate tribal treaties, it would also impact the economic and food security of the Quinault Nation. The dam is also expected to impact cultural sites important to the Quinault, Chehalis, and other regional tribes. Third, the community that USACE believes will benefit from the dam is overwhelmingly white and non-Hispanic. Construction of the dam continues a sad history of institutionalized racism by benefiting majority-white communities at the expense of indigenous communities.

We request that USACE rectify this section of the federal DEIS and include a full assessment of the projected impacts that the dam would have on tribal communities. This should include the impact on fishing and hunting rights, long-term food security and health impacts, and disturbance or destruction of important cultural sites. USACE should also improve section 7.3.6, Environmental Justice Minimization. This section is shamefully inadequate and has no information about targeted outreach to impacted communities or specific measures that can offset the impacts the dam will have on these communities. Because tribal communities were not fully incorporated into section 5.1.1, tribal communities were also not considered in section 7.3.6.

### **Support for a No Action Alternative and a New Path Forward**

We urge USACE to adopt a No Action Alternative and deny the DA authorization permit for the construction the proposed dam. While we support USACE adopting a No Action Alternative, we still strongly encourage other agencies and tribal governments to develop solutions that address flooding in the basin. Governor Jay Inslee recently directed state agencies to develop a non-dam alternative. We request that USACE expediently deny the DA authorization permit so the state, tribal co-managers, and other federal agencies can advance a non-dam alternative to addresses flooding the Chehalis Basin.

It should also be noted that USACE may be misrepresenting the scale of negative impacts reported under the No Action Alternative in the federal DEIS. Most of the negative impacts reported is due to projected growth and development in the region, something that is anticipated to occur with or without the dam. The federal DEIS also fails to note that the construction of this dam may actually encourage additional growth and development, especially in the Chehalis floodplain, by giving developers a false sense of security. Any alternative that includes the proposed dam will have far more severe and enduring impacts to the region than the No Action Alternative.

The only alternative fully assessed in both the state and federal DEIS to reduce flooding impacts was the proposed dam. Sadly, the proposal fails to meet the needs of the Chehalis Basin, jeopardizes the survival of some of our state's most endangered wildlife, disrespects tribal sovereignty, and will only exacerbate the Basin's problems. Instead, Defenders supports the development of a robust and aggressive conservation alternative to provide natural flood control solutions. Such an alternative can also advance other objectives of the state and region. As the state DEIS notes, climate change further threatens the Chehalis Basin's salmon runs, and without aggressive restoration efforts, these runs may go extinct.<sup>32</sup> Defenders supports proactive restoration plans that incorporate

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<sup>32</sup> State DEIS at page 88

climate adaptation and mitigation efforts, such as those outlined in the Aquatic Species Restoration Plan (ASRP), which we submitted comments in support of on January 14<sup>th</sup>, 2020. Unfortunately, the ASRP did not provide recommendations above the proposed location of the dam. Defenders strongly encourages the state to examine multi-benefit conservation actions, like those outlined in the ASRP, that protect habitat, restore salmon runs, and reduce the impacts of flooding.

The state should also work with local governments to explore the feasibility of large-scale, regional stormwater treatment facilities, like the city of Tacoma's Point Defiance stormwater treatment facility<sup>33</sup> or the bioswale under the Aurora bridge in Seattle.<sup>34</sup> Both of these projects are examples of green stormwater infrastructure (GSI), which utilize plants and natural spaces to capture and filter stormwater runoff, both reducing the severity of flooding events and cleaning polluted runoff. The state should look at siting large bioswales and raingardens in strategic places along I-5, other highways, and in communities throughout the Chehalis Basin.

### **Conclusion.**

Flooding in the Chehalis Basin has been, and will continue to be, a significant challenge for the people who live there. Historically, the solution to flooding was to simply dam the river and control the flow of water. As a result of our flood control efforts, largely advanced by USACE, salmon runs are struggling to recover throughout the region and development continues to expand in sensitive floodplain habitat. While dams have provided some protection from flooding, we now know more about the negative long-term impacts of dams on wildlife and ecosystems.

Instead of trying to control the Chehalis River and bend it to our will, we strongly encourage regional partners to pursue a future where people live alongside a free-flowing Chehalis River. Restoring habitat, installing GSI, and offering buy-outs to landowners in the floodplain are among the options that would not jeopardize the health of wildlife populations and the environment. The state should work with tribal co-managers and other federal agencies to develop this non-dam alternative.

Washington state prides itself as a leader in combatting and responding to climate change while responsibly stewarding our natural resources. A dam on the Chehalis River would be antithetical to these efforts, and we strongly encourage USACE to adopt the No Action Alternative.

Sincerely,



Robb Krehbiel  
Northwest Representative  
Defenders of Wildlife

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<sup>33</sup> More information about the City of Tacoma's Point Defiance Regional Stormwater Treatment Facility can be found here:

[https://www.cityoftacoma.org/government/city\\_departments/environmentalservices/surface\\_water/green\\_stormwater\\_infrastructure\\_gsi/gsi\\_projects/point\\_defiance\\_regional\\_stormwater\\_treatment\\_facil](https://www.cityoftacoma.org/government/city_departments/environmentalservices/surface_water/green_stormwater_infrastructure_gsi/gsi_projects/point_defiance_regional_stormwater_treatment_facil)

<sup>34</sup> More information about Aurora Bridget Stormwater Swale project can be found here:

<https://www.nature.org/en-us/about-us/where-we-work/united-states/washington/stories-in-washington/filtering-stormwater/>

November 17<sup>th</sup> 2020

Dear U.S. Army Corps of Engineers,

Please accept the following comments explaining my support from a No Action Alternative and opposition to the proposed dam on the Chehalis River, which the Environmental Impact Statement (EIS) refers to as a 'flood retention facility.'

Dams significantly alter the hydrology, habitat, and ecosystems of the rivers they block. Even with mitigation measures, most dammed rivers are a sad echo of what they once were. Washington is one of the most dammed states in the country, and our efforts to dam almost every river and stream significantly contributed to the collapse of salmon across the region, leading to a cascade of effects on other wildlife, ecosystems, fishing economies, and tribal culture and way of life.

The Chehalis River is the last free-flowing, large river left in Washington. The EIS found that the proposed dam would cause significant and irreparable harm to salmon and steelhead runs in the Chehalis Basin. These are some of the only salmon runs in Washington not listed on the ESA.

The loss of salmon will also impact starving and endangered southern resident orcas, who rely on coastal salmon runs (including those in the Chehalis Basin) during the winter and early spring. With just 74 orcas left, any action that further reduces salmon availability threatens these whales with extinction.

I also stand with the Quinault Nation and am extremely concerned that this dam violates the 1856 Treaty of Olympia. Construction of this dam will likely result in litigation.

The state's EIS on the project also casts doubt as to how effective this dam will be. Fewer than half of structures impacted by flooding now would be protected by the dam, and several sections of I-5 would still experience regular, severe flooding. As climate change further intensifies flooding, it is unlikely that this dam can deliver the long-term solution the Basin needs.

While the EIS proposes mitigation actions for the dam, they are vague and insufficient to fully protect endangered wildlife. The impacts of the proposed dam would be too severe to fully offset. Instead, we encourage the Army Corps to select a No Action Alternative and allow the state and other partners develop a non-dam alternative to address flooding in the Basin. We encourage state, federal, and tribal agencies to develop an ambitious conservation alternative that relies on ecological restoration activities in the upper Basin to reduce flood risks downstream. Such actions can and should include: reforestation efforts, re-establishing flood plain form and function, restoring wetlands, expanding habitat protections, and installing municipal green stormwater infrastructure facilities along I-5 and urban communities.

Dams are an archaic tool that we should be phasing out, not building more of. We support the No Action alternative to reject the proposed dam on the Chehalis River. We urge state, federal, and tribal agencies to work together and develop a new plan to reduce the impacts of flooding in the Basin.

Sincerely,

<b>First name</b>	<b>Last name</b>	<b>City</b>	<b>State</b>	<b>Postcode</b>
Barbara	Vonwolfe	Woodland	WA	98674-3005
Jayne	Larson	Indianola	WA	98342-0155
Ben	Moore	Mountlake Terrace	WA	980435648
Susan	Harmon	Bellingham	WA	98229-4415
Alisha	Leviten	Shoreline	WA	98155
Carrie	Foster-Campbell	Seatac	WA	98198
Tisha	Sotello	Custer	WA	982409720
Dan	Purnell	Vancouver	WA	98684-8780
Dan	Schneider	Seattle	WA	981154217
William	Mcgunagle	Spokane	WA	992074133
Darcy	Leach	Olga	WA	98279-5063
Bruce	Wade	Mount Vernon	WA	982746015
Marsha	Adams	Shelton	WA	98584-1668
Adele	Reynolds	Seattle	WA	98101-1798
David	Benson	Pullman	WA	991633920
Donna	Lefevre	Lake Forest Park	WA	98155
David	Bixler MD FCCP FACP	Lake Forest Park	WA	98155-6725
Amy	Kelm	Everett	WA	982011017
Allen & martha	Crandall	Sequim	WA	98382-7159
Debbi	Pratt	Seattle, wa	WA	98199
Aleana	Waite	Seattl	WA	98118
Deborah	Baird	Greenbank	WA	98253-9752
Deborah	Gandolfo	Kirkland	WA	98033
A.	L.	Kenmore	WA	980283567
Mari	Declements	Marysville	WA	982718509
Alison	Eckels	Seattle	WA	98103-6316
Susanne	Murray	Spokane Valley	WA	992066165
Amy	Mower	Maple Falls	WA	99266
Denise	Mcgregor	Coupeville	WA	98239-3056
Dennis	Milam	Seattle	WA	98102-6805
Alycia	Staats	Seattle	WA	981156004
Dennis	Bahr	Snohomish	WA	982968436
David	Hand	Bainbridge Is	WA	98110
Doris	Raspa	Vancouver	WA	986623131
David	Szilagyi	Vancouver	WA	986650540
Daniel	Henling	Seattle	WA	98107
Amy	Fisher	Lacey	WA	98503-2622
Amy	Heyneman	Bainbridge Island	WA	981104189
' Amy	Kiba	Vancouver	WA	986851339

Diana	Boutin	Huron	OH	44839
Diane	Weinstein	Sammamish	WA	98029
Diane	Sullivan	Oak Harbor	WA	982774556
Diane	Sullivan	Oak Harbor	WA	98277
Diane	Moan	Seattle	WA	98125-4301
Andrea	Corwin	Olympia	WA	98516-4001
Dianne	Gabris	Yacolt	WA	98675
Dianne	Hurst	Lacey	WA	98516-6645
Andrea	Helman	Seattle	WA	98146-1726
Diane	Nixon	Renton	WA	98056
Amy	Nesler	Friday harbor	WA	982502657
Kevin	Hughes	Anacortes	WA	982211935
Jennifer	Lindstrom	Bellingham	WA	98226-8630
Divya	Rathor	Sammamish	WA	980757296
Angie	Dixon	Clinton	WA	98236
Angela	Kelly	Olympia	WA	98501-2943
Kathryn	Lambros	Seattle	WA	981174444
Anita	Das	Seattle	WA	98125
Anna	Boynton	Seattle	WA	98109-2383
Dean	Webb	Seattle	WA	98199-1154
Dean	Fanara	Elk	WA	990099753
Dan	Snyder	University Pl	WA	984672927
Desi	Nagyfy	Deer Park	WA	990068352
Gill	Fahrenwald	Olympia	WA	98507
Alan	Pilkington	Seattle	WA	98126-3244
Jane	Barron	Dayton	WA	99328-1610
Don	Thomsen	Spokane	WA	992024278
Ann	Pryich	Mill Creek	WA	980822363
Miriam	Danu	Bellingham	WA	98229-7776
Carol	Houck	Port townsend	WA	98368
Eric	Frommer	Everett	WA	98204-7911
David	Todnem	Port Angeles	WA	983628930
Dorothy	Jordan	Lynden	WA	98264-9401
Arthur	Rochester	Port Townsend	WA	98368-2746
Sandraq	Maddox	Lake Stevens	WA	98258
Doug	Gemmell	Everett	WA	982089706
Barb	Drake	Seattle	WA	98133-8838
Asphodel	Denning	Mercer Island	WA	980402220
Ray	Couture	Seattle	WA	98168
Dennita	Rittenback	Vancouver	WA	98682-1985
Julian	Allen	Seattle	WA	98199-1921
Kym	Aughtry	Sequim	WA	98382-9764
Lisa	Vandermay	Renton	WA	98058

Austin	Boese	Wenatchee	WA	98801
Derek	Benedict	Lynnwood	WA	980368606
Scott	Burgett	Sequim	WA	98382-9135
Donna	Snow	Lacey	WA	98503-6967
David	Randall	Spokane	WA	99203-1714
Doug	Swanson	White Salmon	WA	98672
Barbara	Tountas	Shoreline	WA	981551531
John	Lundquist	Auburn	WA	980012833
Diana	Williams	Lacey	WA	985038207
Ravinder	Bajwa	Redmond	WA	98052-6841
Angela	Wood	Bothell	WA	98021
Barbara	Delgiudice	Hoquiam	WA	98550-1726
Barbara	Hart	Silverdale	WA	98383
Barbara	Gross	Seattle	WA	98115-7542
Barbara	Ocskai	Snohomish	WA	982902986
Erin	Johnson	Lakewood	WA	984983404
Bruce	Barnbaum	Granite Falls	WA	982528597
Ellen	Madsen	Olympia	WA	98502
Edna J	Springer	Tumwater	WA	98501
Edward	Mills	Bellevue	WA	98008
Bernadette	Pila	Everett	WA	98204
Dolores	Darst	Port Angeles	WA	98362-8429
Marilyn	Paller	Point Roberts	WA	98281-9504
Steve	Bear	Port Townsend	WA	983688833
Barbara	Woo	Bellevue	WA	980051517
Berinda	Van Cleave	Battle Ground	WA	98604
Richard	Noll	Port Townsend	WA	983689543
Beth	Eisenbeis	Bothell	WA	98012-9305
Susan	Betourne	Mukilteo	WA	982753315
Betsy	O' Halloran	Spokane	WA	99208-9745
Beverly	Nichols	Las Vegas	NV	89128-0337
Barbara	Bonfield	Tacoma	WA	98407
Bonnie	Gretz	Coupeville	WA	98239-3597
Bianca	Kednay	Vancouver	WA	98682
Erika	Beristain	Gig Harbor	WA	98332
Bill	Benjamin	Deer harbor	WA	98243-0087
William	Miller	Kalama	WA	98625-1100
William	Shanks	Seattle	WA	981152633
Barbara	Orr	Lakewood	WA	984994910
James	Sorensen	Tacoma	WA	98407-6000
Barbara	Tish	Spokane Valley	WA	99206
Billy	Kemp	Tacoma	WA	984112396
Laura	Huddleston	Seattle	WA	981061549

Laurie	Black	Seattle	WA	98103-9001
Lynne	Blanford	Burlington	WA	98233
Farley	Bartelmes	Kirkland	WA	98034-5730
Bradley	Bleck	Spokane	WA	99203-1018
Katherine	Mclean	Allyn	WA	985240143
Blaine	Peet	Bremerton	WA	98310
Marian	Blue	Clinton	WA	98236
Robert	Byington	Redmond	WA	98053-8139
Suan	Giblin	Renton	WA	98058-9680
Gary	Larson	Shoreline	WA	981557118
Bonnie	Western	Gig Harbor	WA	983358183
Roberta	Mcbride	Edmonds	WA	98026-7319
Felicity	Devlin	Tacoma	WA	984065839
Rosanne	Anderson	Cheney	WA	990049672
Bonnie	Heimbigner	Spokane	WA	992249606
Charlene	Finn	Seattle	WA	98112-3510
Karin	Hagen	Seattle	WA	981463124
Farnoush	Katouzian	Tacoma	WA	984652055
Laessa	Fourre	Olympia	WA	98516-9557
Florence	Harty	White Salmon	WA	98672
Louise	Gallion	Bothell	WA	98011-1963
Brad	Buchanan	Lopez Island	WA	98261-8769
Bradley	Waters	Woodinville	WA	98077-7301
Brandon	Juhl	Mill Creek	WA	98012
Brandon	Moberg	Seattle	WA	98109
Cathy	Brandt	Issaquah	WA	98027-5400
Patricia	Fox	Olympia	WA	98513-5049
Brenda	Seifert	Yakima	WA	989088000
Brenda	Strange	Spokane	WA	99203-2140
Joseph	Franetic	Friday Harbor	WA	98250-8188
Briana	Hall	Spokane	WA	992234502
Bronwen	Evans	Seattle	WA	981042211
Brookelyn	Monahan	Richland	WA	99352
Andrew	Kronen	Seattle	WA	981262240
Steven	Brown	Vashon	WA	98070
Bryana	Walters	Snohomish	WA	982968072
Bonnie	Savo	Renton	WA	98059-8822
Judith	Miller	Tacoma	WA	984042149
Barbara	Lamb	Langley	WA	982609208
Papken	O'Farrell	Bothell	WA	98011
Gail	Dominick	Montesano	WA	98563-9675
Jack and Anita	Waytz	Bellingham	WA	98229-7781

Brenda lea	Vanderwilde	City of spokane valley	WA	99212-0256
Cathy	Wyatt	Bainbridge Island	WA	98110-1366
April	Faires	Puyallup	WA	98374-4140
Carol	Roan-Dennis	Freeland	WA	98249-9727
Geisha	Garcia	Bellevue	WA	980044684
Jo	Harvey	Pacific	WA	980471222
Karla	Taylor	Olympia	WA	98502-8159
F.	T.	Orting	WA	983608201
Calista	Whitney	Spokane	WA	99208
Annie	May	MILTON	WA	98354
Carolyn	Long	Port Angeles	WA	983620276
Gina	Abernathy	Sammamish	WA	980757441
Holger	Mathews	Seattle	WA	981342135
Greg	Onsel	Arlington	WA	982238017
Keith	Brumwell	Burien	WA	98146-3305
C.	Martin	Pt. Roberts	WA	98291
Gerald	Keeer	University Place	WA	984672229
Glen	Anderson	Lacey	WA	985032723
Carol	Ellis	Seattle	WA	98116-3725
Mark	Bradley	Sequim	WA	983827714
Michelle	Jones	Fall City	WA	980249632
Chelsea	Norvell	Yakima	WA	989039669
Janet	Hedgepath	Vancouver	WA	986601619
Howard	Zimmerman	Lacey	WA	98503-4196
Cathern	Murphy	Sedro Woolley	WA	98284
Graciela	Rodriguez-Sero	Seattle	WA	98133-9110
Kathy	Stokes	Aberdeen	WA	98520-2424
Lori	Greenfield	Mukilteo	WA	982755548
Melissa	Rees	Spokane Valley	WA	992123083
Beth	Hall	Olympia	WA	985017137
Greg	Espe	Seattle	WA	981156908
Greg	Willett	Gig Harbor	WA	98329-7050
Griffin	Berlin	Eastsound	WA	98245-9497
Mary	Guard	Friday Harbor	WA	982505613
Caryn	Tate	Seabeck	WA	98380
Guy	Chan	Seattle	WA	981950001
Geoffrey	Welsh	Seattle	WA	98119-2674
Charlene	Donovan	Vancouver	WA	98664
Trina	Strong	Port Angeles	WA	983629337
Hannah	Gardner	Brier	WA	98036
Cheri	Kunz	Woodinville	WA	98077-7738

Cheri	Pysson	Sequim	WA	98382
Donna	Arnold	Tacoma	WA	984447084
Cheryn	Zimmer	Mount Vernon	WA	982743009
Daibra	Duncan	Elk	WA	99009-9720
Harlan	Solomon	Lacey	WA	985032932
Chris	Guillory	Port Angeles	WA	983622803
Christopher	Marrs	Port Townsend	WA	983689237
Chris	Tauson	Olympia	WA	985023892
Christina	Frutiger	Gig Harbor	WA	983357933
Helene	Jaillet	Bothell	WA	98011-5462
Heather	Haverfield	Langley	WA	982600964
Cheri	Carlson	Tacoma	WA	984221740
Christopher	Knipes	Camas	WA	98607-9314
Clara	Jacobson	Olympia	WA	98512
Donna	Clark	Port Angeles	WA	98363-1439
George	Summer	Seattle	WA	98144-3463
Chris	Wagner	Seattle	WA	981782518
Carolynne	Myall	Spokane	WA	99202-2523
Elena	Rumiantseva	Seattle	WA	981154405
Colleen	Curtis	Bellingham	WA	98229-8900
Constance	Corrick	Seattle	WA	981062203
William	Conger	Anacortes	WA	982218584
Constance	Knudsen	Seattle	WA	98117
Batya	Harlow	Edmonds	WA	980205611
Susan	Hubbs	Mountlake Terrace	WA	98043-3487
Pamela	Cornish	Silverdale	WA	98383-8176
Linda	Swan	Snohomish	WA	982910224
Ingrid	Rasch	Seattle	WA	98109
Andrea	Gruszecki	Shoreline	WA	981332767
Stefan	Lewis	Edmonds	WA	98026-6207
Hilary	Lucas	Tenino	WA	98589-9622
Iona	Stenhouse	Seattle	WA	98122-6329
Isabel	Peach	Shoreline	WA	98133
Susan	Hampel	Eastsound	WA	982458824
Crista	Worthy	Boise	ID	83714-9457
Lisa	Critchlow	Lummi Island	WA	982620035
Edward	Cronin	Nine Mile Falls	WA	99026
Carol	Crowell	Seattle	WA	98115-3377
V	Mangum	Spokane Valley	WA	99206
Janet	Schiersch	Kingston	WA	98346-9658
Annette	F	Arlington	WA	98223
Joyce	Grajczyk	Kent	WA	980312272

Chris	Bieker	Port Orchard	WA	98366
Jim	Wingate	Colbert	WA	99005
Cynthia	Smith	Sammamish	WA	98075
Janaki	Severy	Seattle	WA	98115
Margaret	Morency	Mercer Island	WA	98040-3561
Janet	Saupp	Port Townsend	WA	983686713
Janice	Brookshier	Seattle	WA	98109
Silvia	Jansson	Redmond	WA	98052-3918
Mary	Winters	Lacey	WA	98513
Marie	Weis	Fox Island	WA	98333-9725
Mark	Lucianna	Camano Island	WA	98282-8237
Mark	Macdonald	Seattle	WA	981461113
Mark	Cunningham	Seattle	WA	98136-2291
Mark	Frey	Yelm	WA	985979345
Richard	Johnson	Bellingham	WA	98227-3138
Janet	Phelps	Hoquiam	WA	98550-1013
Melodie	Martin	Seattle	WA	981024013
Jeff	Kozma	Yakima	WA	98901-5382
Judith	Cohen	Seattle	WA	98112-4606
Jeanne	Oliver	Seattle	WA	98136-2538
Mary ann	Sircely	Eastsound	WA	98245
Jean	Jensen	Graham	WA	98338
Jean	Schwinberg	Seattle	WA	981054245
Sherry	Petersen	Mount Vernon	WA	982735835
Jeff	Freels	Lacey	WA	985036927
Jeffery	Mcconaughey	Bellingham	WA	982257237
Kim	Seater	Seattle	WA	981461056
Jane	Leavitt	Seattle	WA	98144-6214
Maureen	Parriott	Oroville	WA	98844-2267
Jennifer	Corrigan	Snohomish	WA	982907259
Jennifer	Davison	Seattle	WA	981034208
Jennifer	Buchanan	Richland	WA	99352-3633
Maureen	Jansen	Issaquah	WA	98027
Jennifer	Nelson	Seattle	WA	98133-8027
John	Mcgill	Sequim	WA	983824348
Jerry	King	Camano Island	WA	98282-7375
Jerry	Kessinger	Lynnwood	WA	98087
Tim	Mcnulty	Sequim	WA	983829292
Mark	Koehnen	Quincy	WA	98848
Richard	Morgan	Bellingham	WA	982266617
Janet	Stevensosn	Port Townsend	WA	98368-2567
Jacqueline	Steve	Spokane	WA	99223-1842
Jill	Nunez	Buckley	WA	98321-8410

Jill	Roseen-Czaplicki	Redmond	WA	98052-6066
Jim	Erckmann	Kirkland	WA	98033-8740
Mary	Maltman	Seattle	WA	98105-5206
Judy	Jensen	Vashon	WA	98070-3605
Debera	Jacobs	Spokane	WA	99200
Merriann	Bell	Lyle	WA	986359509
Meryle A.	Korn	Bellingham	WA	982264112
Ji-young	Kim	Bothell	WA	980127627
Jessica	Klein	Winthrop	WA	98862-0000
Jacob	Meyer	North Bonnevillle	WA	986394647
Robert	Meyer	Seattle	WA	981074352
M.	Lind	Vancouver	WA	986661063
Michael	Reese	Union	WA	98592-0430
John	S	Seattle	WA	981331908
Jennifer	Westra	Spokane	WA	992021208
Mia	Heavyrunner	Port Orchard	WA	983668809
Jack	Lockhart	Everett	WA	982035501
Jesse	Mallory	Kennewick	WA	993373927
Ann	Michaud	Spokane	WA	99223
Jennifer	Bailey	Gig Harbor	WA	98335
Judy	Mclain	Oak Harbor	WA	98277
Jeanene	Lorey	Bothell	WA	98021-9242
Judith	Recek	Tacoma	WA	984063010
Michael	Nesbitt	Seattle	WA	98199-2722
James	Bartlett	Chehalis	WA	985329430
Jo	Lombardi	Westport	WA	98595-2258
Joanne	Parrent	Vancouver	WA	98663-2161
Mike	Fleming	Seattle	WA	98122
Michael	Vincent	Seattle	WA	9812
Joanie	Reynolds	Port Townsend	WA	98368
Joanna	Vintilla	Seattle	WA	981338113
Joann	Lincoln	Olympia	WA	98501-9522
Joan	Peter	Gig Harbor	WA	983355906
Joann	White	Port Orchard	WA	98367-7745
Jody	Caicco	Vancouver	WA	986829548
Debbie	Mahder	Battle Ground	WA	98604-8169
John	Chambers	Port Angeles	WA	98362-7826
Melissa	Clayman	Kirkland	WA	980335166
Wanda	Russell	Aberdeen	WA	985209644
John	Gieser	Seattle	WA	981174420
Marilyn	Mosley	Vashon	WA	98070

Mechelle	Hannahs	Tacoma	WA	984465318
Michelle	Mizuki	Seattle	WA	98108-3040
Margaret	Wettergreen	Bellingham	WA	98225-5211
Jolie	Misek	Olympia	WA	985139422
Monica	Lisafeld	Vashon	WA	98070
Matt	Marici	Kirkland	WA	98033-8503
Joseph	Joyce	Battle Ground	WA	98604-1053
Joan	Turpin	Vancouver	WA	98662
Jeffrey	Peters	Kent	WA	98042-3240
M'Lou	Christ	Redmond	WA	98052
Joanna	Redman-Smith	Kent	WA	980319609
Linda	Chung	Bellevue	WA	98004
Jenny	Schlieps	Seattle	WA	98146-1104
Claire	Morency	Vancouver	WA	986826300
Kathleen	Allen	Seattle	WA	98118
Judith	Thierry	University Place	WA	98467-3941
Judy	Tralnes	Bellevue	WA	98009
Judith	Marriott	Olympia	WA	98507
Judith	Bahl	Vancouver	WA	98683-5177
Julie	Woodman	Seattle	WA	98117
Julie	Palumbo	Port orchard	WA	98366
Lynn	Tucker	Seattle	WA	98108-2361
Suzanne	Nattrass	Yelm	WA	985972430
Vanessa	Jamison	Marysville	WA	98270
Laurie	Sterling	Port Orchard	WA	98366-8621
Stacee	Anderson	Spokane	WA	992281613
Justus	Erikson	Vancouver	WA	986853839
Mary	Brasseaux	Lakewood	WA	98499-1283
Joanne	Watchie	Seattle	WA	981162271
Kathleen	Medina	Anacortes	WA	982214117
Lyn	Lukich	Spokane	WA	992181515
Kaija	Jones	Vashon	WA	98070-7629
Karen	Leifker	Nine Mile Falls	WA	99026-6005
Karen and Bruce	Roberts	Bellingham	WA	98225
Nancy	White	Spokane Valley	WA	992160202
Valerie	Holland	Vancouver	WA	986840878
Crystal	Schaffer	Lacey	WA	98503-7136
Kassie	Wheeler	Deer Park	WA	990068514
Kathryn	Townsend	Olympia	WA	98506-9727
Natasha	Green	Bellingham	WA	98229-3797
Nick	Barcott	Lynnwood	WA	98087
Kathryn	Dewees	Tacoma	WA	98405
Nicole	Berg	Washougal	WA	98671

Judith	Boles	Vancouver	WA	986632616
Kathleen	Lee	Lacey	WA	985032164
Neal	Umphred	Redmond	WA	98052
Theresa	Martin	Puyallup	WA	98372-5029
Melinda	Forest	Vancouver	WA	986855503
Jerry	Brines	Spokane Vly	WA	99212-2624
Nessa	Shiley	Newcastle	WA	98059-3136
Ruth	Falcon	Seattle	WA	98125
Margie	Kawamoto	Quilcene	WA	98376-0069
Tora	Wienand	Shelton	WA	985849686
Katherine	Nelson	Kent	WA	980313166
Kelley	Price	Kirkland	WA	98033-8433
Kelli	Delaney	Algona	WA	98001
Nancy	Campen	Puyallup	WA	98374-4534
Ken	Mincin	Redmond	WA	980522605
Nolen	Scott	Port Angeles	WA	98362-7856
Norm	Conrad	Mount Vernon	WA	98274
Nancy	Miller	Seattle	WA	981256136
Rebecca	Bartlett	Anacortes	WA	98221
Anne	Elrod	Federal Way	WA	980933804
Patrick	Conn	Kent	WA	980319669
Kim & dean	Hutchinson	Federal way	WA	98003-3624
Emily	Austin	West Richland	WA	993537405
Luci	De Andrade	Silverdale	WA	98383-9263
Kimberlee	Spicer	Bothell	WA	98021
Kimberly	Crane	Snohomish	WA	982901734
J.	H.	Orting	WA	983609449
Susannah	Everlund	Seattle	WA	98125-4256
Dr	Copas	Medina	WA	98039
Tricia	Dillard	Bellevue	WA	98005-2949
Steve	Ordal	Seattle	WA	98109-2307
Klaudia	Englund	Anacortes	WA	98221
Cindy	Black	Seattle	WA	98133-9220
Karmen	Lee	Washington	DC	20036
Karen	Groth	Hansville	WA	98340
Penny	Brooks	Edmonds	WA	98026-4840
Julie	Holtzman	Snohomish	WA	982902053
Pamela	Larsen	Camano Island	WA	98282-6680
Pam	Parsons	Ridgefield	WA	98642
Dean	Howe	Bonney Lake	WA	98391-9579
Pamela	Hill	Coupeville	WA	98239-0665
Jeff	Kozma	Yakima	WA	989015382
Phyllis	Self	Bellingham	WA	98225-7802

Kristem	Michael	Seattle	WA	98168
Patricia	Lenzen	Vancouver	WA	98684
Kristin	Felix	Olympia	WA	985029501
Kristin	Stewart	Olympia	WA	985162606
Patricia	Kingsley	Auburn	WA	980012521
Sheryl	Krohne	Spokane	WA	99208-8258
Christine	Psyk	Seattle	WA	98112-5339
Patricia D.	Wilson	Belfair	WA	985281918
Kimberly	Teraberry	Seattle	WA	98112
Kathlene	Croasdale	Redmond	WA	980523406
Paul	Potts	Raymond	WA	985779223
Paul	Franzmann	Walla Walla	WA	993623192
Kathy	Wilson	Port Ludlow	WA	983659775
Pawiter	Parhar	Renton	WA	980564142
Fay	Payton	College Place	WA	993241842
Paula	Bennett	Seattle	WA	981254139
Leeann	Chastain	Eastsound	WA	98245-8533
Michelle	Pavcovich	Seattle	WA	981256553
Silvia	De Los Santos	Seabeck	WA	98380-9449
Laura	Finkelstein	Seattle	WA	98119-1302
Peggy	Page	Stanwood	WA	982926268
Roland	Goyette	Vancouver	WA	98661
Penelope	Johansen	Montesano	WA	985633411
Lanie	Cox	Spokane	WA	992248242
Perry	Wong	Kent	WA	980314139
Robert	Brown	Fircrest	WA	984666640
Peter	Hodum	Tacoma	WA	98407-2109
Larry	Mahlis	Seattle	WA	981152205
Brandie	Deal	Bothell	WA	980218353
Laura	Hassin	Mercer Island	WA	98040-5536
Laurie	Gogic	Kirkland	WA	98034-6336
Lawrence	Magliola	Sequim	WA	983829310
Michele	Flinner	Puyallup	WA	98373-9176
Lura	Irish	Home	WA	98349
Priscilla	Christenson	Camas	WA	98607-7057
Robert	Cooper	University Pl	WA	98467-4580
Dennis	Ledden	Sequim	WA	98382
Mark	Peterson	Chimacum	WA	983258782
Michael	Lampi	Bellevue	WA	980085516
Lela	Perkins	Everett	WA	982088800
Leonard	Elliott	Auburn	WA	980023046
Leonard	Obert	Renton	WA	980596006
Peter	Reagel	Seattle	WA	98108

Priscilla	Martinez	Bothell	WA	98011-7608
Steve	Williams	Tacoma	WA	98406-8210
Lance	Packer	Oak Harbor	WA	98277-4053
Paula	Shafransky	Sedro Woolley	WA	982848586
Lars	Husby	Seattle	WA	98144-3218
Betsy	Pendergast	Port Townsend	WA	983684434
Marty	Crowley	Port Townsend	WA	983682226
Joanna	Stiehl	Olympia	WA	98506-4229
Pete	Weymiller	Gig harbor	WA	98335-5890
Alison	Quinn	Seattle	WA	98103
Harry	Gibbons	Bainbridge Island	WA	98110-4354
Gail	Haubrich	Marysville	WA	98270-8900
Javier	Jimenez Juarez	Kirkland	WA	98034-2540
Linda	Carroll	Spokane	WA	992053178
Virgene	Link-New	Anacortes	WA	98221
Lin	Provost	Seattle	WA	98144
Ralph	Richardson	Dronfield	WA	51825
Diana	Fowler	Gig Harbor	WA	98335-1667
Robert	Vanderkamp	Battle Ground	WA	986044277
Frances	Mckee	Kirkland	WA	98033-3927
Elizabeth	Walton	Sammamish	WA	980744007
Raquel	Karno	Pala	CA	92059
Robb	Mottl	North Bend	WA	98045
Lisa	Halpern	Seattle	WA	98118-2558
Lori	Erbs	Acme	WA	98220-0050
Lori	Mckenna	Indianola	WA	98342-0459
Lorraine	Johnson	Seattle	WA	981252603
Lorraine	Hartmann	Seattle	WA	981256943
Lorraine	Thompson	Gig Harbor	WA	98329
Rey & kathy	Villegas	Port angeles	WA	98362-9154
Delorse	Lovelady	Kenmore	WA	980287945
Shannon	Lewis	Puyallup	WA	98374
Robert	Perez	Bonney Lake	WA	983915955
Sherry	Kraft	Edmonds	WA	980205012
Luz	Starck	Steilacoom	WA	98388-1524
Richard	Yust	Arlington	WA	982239413
Rose	Nauta	Spokane	WA	99223-7786
Lynn	Erckmann	Kirkland	WA	98033-8740
Nancy	Debusman	Carlsborg	WA	98324
Richard	Ress	Edmonds	WA	980268213
Roberta	Cordero	Kent	WA	980308504
Kathleen	Hay	Spokane	WA	99201-1710

Richard	Rock	Ocean Shores	WA	98569-9589
Aristana	Firethorne	Langley	WA	982600633
Mary	Easton	Cosmopolis	WA	985373933
Ronald	Reed	Spokane	WA	99223-1816
Mana	Iluna	Bellevue	WA	98007
Rose	Thygesen	Shoreline	WA	98155-3733
Ross	Christianson	Vancouver	WA	98664-2937
Sandy	Lynch	Bremerton	WA	98311-9523
Mary anne	Paeth	Gig harbor	WA	98335
Rozatron	Briere	Kirkland	WA	98034-6428
Martha	Atkinson	Valley	WA	991819718
Marco	De la Rosa	Kirkland	WA	98034
Nadine	Wallace	Tacoma	WA	98407-6338
Ruth	King	Lacey	WA	985033025
Susan	Murawski	Gig Harbor	WA	98329-4156
Robert	Stanley	Wenatchee	WA	988019074
Steve	Wilson	West Richland	WA	993534000
John	Sailer	Port Townsend	WA	98368
Sallie	Madrone	Langley	WA	98260-9313
Emily	Harrold	Seattle	WA	981163446
Sally	Neary	Kent	WA	980312673
Sue	Matus	Seattle	WA	98119
Sandra	Mccarthy	Portland	OR	97070
Sandra	Perkins	Seattle	WA	981254627
Sarah	Hafer	Vancouver	WA	986845913
Sarah	Macdougall	Freeland	WA	98249-9620
Sara	Strickland	Edmonds	WA	98020-3577
Steven	Biggio	Bellingham	WA	982293765
Stephanie	Edwards	Lake Forest Park	WA	981555435
Aubrey	Scheel	Walla Walla	WA	993624255
Scott	Rooney	Seattle	WA	98109-3216
Katrina	Macgregor	Freeland	WA	98249-9789
Mary	N	Vancouver	WA	986833908
Sean	Edmison	Redmond	WA	98052-2785
Sharon	Stroble	Seattle	WA	98119-2412
Sharon	Tauber	Lopez Island	WA	98261
Sandra	Baylor	Graham	WA	983381214
Shari	Hamilton	Port Angeles	WA	98362-4204
Shary	B	Seattle	WA	981011075
Shawndra	Michell	Olympia	WA	98501-6336
Eileen	Deutsch	Port Townsend	WA	983684730
Sharren	Davis	Vancouver	WA	98684-7910

Saralyn	Montgomery	Moxee	WA	98936-9736
Kara	Wenrich	Seattle	WA	98126
Sara	Hoerlein	Bellingham	WA	98229-2110
Silke	Chipchase	Dupont	WA	98327-8751
Lisa	Brawn	Lacey	WA	985163899
Sharmayne	Busher	Vancouver	WA	986621881
Karen	Shea	Kenmore	WA	98028-4367
Kate	Ionina	Redmond	WA	980524063
Oleg	Varanitsa	Redmond	WA	980524063
Barbara	Rosenkotter	Deer Harbor	WA	982430136
Jessica	David	Sumas	WA	982952226
Ronald	Reagan	Spokane	WA	992053047
Cassandra	Martin	Longbranch	WA	98351
Stephen	Buck	Richland	WA	99352-7510
Heather	Raftery	Quesnel	WA	99164
Sophia	Lyles	Eastsound	WA	98245-1298
Naomi	Jarvie	Lummi Island	WA	98262-8720
Linda	Nelson	Vancouver	WA	98661-1980
Kathleen	Lowney	Issaquah	WA	98029-6537
Dab	Carpita	Enumclaw	WA	98022
Stephen	Poteet	Bellevue	WA	98008-2149
Peter	Ross	Seattle	WA	98165-2728
Kathleen	Butler	Olympia	WA	985012553
Scott	Species	Seattle	WA	981011432
Shreeraj	Sutaria	Seattle	WA	981992424
Stacey	Cooper	Mercer Island	WA	980401051
Stacy	Neal	Everson	WA	98247-9475
Stephanie	Simonton	Friday Harbor	WA	98250-8058
Steve	Salonen	Vashon	WA	98070-4308
Stephen	Bailey	Deming	WA	98244-9415
Stephanie	Trasoff	Ferndale	WA	982489224
Susan	Kane	East Wenatchee	WA	98802
Susan	Bradford	Camano Island	WA	98282
Susan	Denike	LACEY	WA	98503
Susan	Thiel	Spanaway	WA	983877630
Steve	Uyenishi	Seattle	WA	98115-6009
Sean	O'Dell	Renton	WA	980563540
Julanne	Nowak	Bellingham	WA	98226
Sheila	Weidendorf	Langley	WA	98260
Tom	Swoffer	Ravensdale	WA	980518921
Sybil	Kohl	Seattle	WA	981158112
Sharon	Pederslie	Seattle	WA	98112-4559
Timothy	Manring	Chimacum	WA	98325-9722

Lyle	Wirtanen	Walla Walla	WA	993629232
Tracy	Weldon	Bothell	WA	98021-9466
Rick	Taylor	Everett	WA	98208-7761
Tammi	Turner-franklin	Issaquah	WA	980274122
Suzanne	Hamer	Woodinville	WA	980726611
Barbara	Temple- Thurston	Tacoma	WA	98406-6503
Teri	Mann	Lynnwood	WA	98036
Teri	Travis	Kenmore	WA	980284278
Terrence george	Brown	Seattle	WA	981155952
Barbara	Hill	Elbe	WA	98330-0323
Theresa	Sullivan	Poulsbo	WA	983708066
Theresa	Skager	Tacoma	WA	98403-2040
Thomas	Libbey	Seattle	WA	981223916
Jerry	Thompson	Everett	WA	982033873
Nance	Nicholls	Davenport	WA	99122
Carol	Tiger	Bonney Lake	WA	98391-6068
Nora	Davidson	Bremerton	WA	98311
Jessica	Bowen	Spokane	WA	99205-2723
Tika	Bordelon	Seattle	WA	981011965
Tina	Ethridge	Seattle	WA	981012821
T	Thompson	Gig harbor	WA	98335-3178
Terry	Lee	Bremerton	WA	98310-5412
Tod	Johnston	Port Townsend	WA	98368-3018
Mary	Judge	Friday Harbor	WA	98250-8845
Thomas	Trescone	Seattle	WA	981025354
Toni	Meehan	Brinnon	WA	98320-9758
Charles	Torre	Seattle	WA	98117-5711
Tracy	Ouellette	Bow	WA	98232-9246
Gordon	Wood	Seattle	WA	981443314
Patricia	Beckman	Auburn	WA	980011925
Susan	Burnett	Seattle	WA	98133
Teresa	Van Haalen	Spokane Valley	WA	99016
Diann	Macrae	Bothell	WA	980218004
Teresa	Robinson	Port Orchard	WA	98367-9336
Tyler	Otto	Maple Valley	WA	98038-5203
Marilyn	Heuser	Snohomish	WA	98290-0000
Wendy	Gardner	Seattle	WA	98155
Selim	Uzuner	Carnation	WA	980145800
Wesley	Banks	Vancouver	WA	986820067
Sharon	Vander Pool	Lake Tapps	WA	983918968
Nancy	Schilling	Bellingham	WA	98225-2519
Donna	Valdez	Snoqualmie	WA	980659675

Vicki	Thomas	Bellingham	WA	98229-4449
Victoria	Urias	Seattle	WA	981253705
Victoria	Willson	Enumclaw	WA	98022-2272
Vimala	Nachimuthu	Issaquah	WA	98029
Glenna	Johnson	Redmond	WA	98052-4677
Valerie	Mehring	Seattle	WA	98125
Victoria	Klyce	Carnation	WA	98014-1131
Thom	Peters	Snohomish	WA	982905884
Ryan	Welch	Kenmore	WA	980283912
Todd	Scofield	Lacey	WA	985165772
William	Moore	Sumner	WA	98390
Kristal	Kurran	Leavenworth	WA	98826-9325
Wendy	Bowman	Lacey	WA	985033694
Jan	Weisel	Woodinville	WA	98072-9163
Gene	Kojkowski	Longview	WA	98632-9507
Dawn	Wilder	Maple Falls	WA	98266-0397
Chuck	Ricevuto	Oroville	WA	98844
Will	Golding	Tacoma	WA	984024802
Lidia	Mori	Olympia	WA	98506-9638
George	Colee	Poulsbo	WA	983708296
Carole	Henry	Seabeck	WA	98380
James	Mulcare	Clarkston	WA	994032576
Steven	Yanoff	Port Townsend	WA	98368
Yvette	Goot	Colville	WA	991145031
Tina	Brown	Anacortes	WA	982212962
Diane	Smith	Bellingham	WA	98229
Angella	Dugdale	Everett	WA	982035918
Linda	Martin	COLVILLE	WA	99114
Daniel	Mcdevitt	Vashon	WA	98070
Wendolyn	Herman	Lakebay	WA	98349
Jon	WENT	SEATTLE	WA	98119
Denise	Day	Tacoma	WA	98404
Ella	De Vries	Bedum	WA	97122
Coleen	Dove	Sumner	WA	98391
Jennifer	Titilah	Snoqualmie	WA	98065
Lester	Thompson	Seattle	WA	98199-4016
Pamela	Thompson	Chehalis	WA	98532-8669
Christopher	Lawrence	Spokane	WA	992032651
Deborah	Johnson	Edmonds	WA	98026
Barbara	Blackwood	Spokane Valley	WA	992065728
Kim	Torres	Port Orchard	WA	983677347
Michael	Torres	Port Orchard	WA	98367
Janelle	Church	Yelm	WA	985976711

David	Bailey	Sequim	WA	98382
Carol	Stevens	Yelm	WA	985979062
Tessa	Karno	Clinton	WA	982368781
Linda	Orgel	Aberdeen	WA	98520-9516
Sunday	Kraushaar	Washougal	WA	98671-6660
Veronika	Coleman	Dayton	WA	99328
Marjorie	Millner	Vancouver	WA	98685-1256
Casi	Nix	Lockport	IL	60441
Charles	Collier	Redmond	WA	980523236
Carrie	Wachob	Edmonds	WA	98026
John	Loman	Bellevue	WA	98005-4457
Diana	Talbott	Fircrest	WA	984666013
Paul	Tomlinson	Edmonds	WA	98020
Sophia	Keller	Seattle	WA	98146
Tj	Thompson	Gig harbor	WA	98335
Patti	Smith	Aberdeen	WA	98520-5939
Donna	Alexander	Stanwood	WA	98292
Mark	Blitzer	Seattle	WA	981174529
Nancy	Thomas	Renton	WA	98058
Linda	Bowman	VANCOUVER	WA	98665
Monoj	Gupta	Lynnwood	WA	98036
Lindie	Obrien	Erieau	ON	N0P 1N0
Barb	Moeller	Seattle	WA	98126-3285
Julie	O'Donnell	Seattle	WA	981775214
Shondra	Bingaman	Marysville	WA	982717129
William	Elliott	Everett	WA	98204
Paul	Arneson	Orting	WA	98360
Leigh anne	Jasheway	Eugene	OR	97404
William	Sinnett	Washougal	WA	98671-8506
Neus	Ros	Arenys de Munt		8358
Samuel	Finn	Seattle	WA	98112-3510
Ahmika	Kluka	Westfield	NJ	7090
Sierra	Shuler	Washougal	WA	98671
Jeffrey	Peters	Kent	WA	98042-3240
Kandi	Wilke	Apache junction	AZ	85120



17 November 2020

Brandon Clinton, Project Manager  
U.S. Army Corps of Engineers  
Chehalis Flood Damage Reduction Project EIS  
c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, Oregon 97219

Mr. Clinton,

The Washington Coast Sustainable Salmon Partnership (hereafter Coast Salmon Partnership), an alliance of local partners and scientific experts formed in 2007 in response to the Washington State Salmon Recovery Act, appreciates the opportunity to comment on the draft National Environmental Policy Act Environmental Impact Statement (DEIS) for the proposed Chehalis River Basin Flood Damage Reduction Project (Proposed Project). The geographic range for our organization spans nearly four million acres on the outer coast of Washington State and includes all watersheds that flow directly into the Pacific Ocean, including the Chehalis River.

Our detailed comments on the DEIS are included with this letter, but we want to especially emphasize five crucial points of equal rank:

- **The Proposed Project will exacerbate current stresses on salmon in the Chehalis River and set back more than two decades of effort and monetary investment to protect and restore salmon habitat.**
- **The DEIS results and conclusions are incomplete and possibly erroneous because the DEIS fails to include climate change impacts in the analysis.**
- **The DEIS underestimates impacts of the Proposed Project on steelhead and Southern Resident Killer Whales.**
- **The DEIS should use a revised set of metrics to select additional alternatives to the Proposed Project.**
- **Mitigation would be needed and yet is uncertain. The DEIS does not address whether a compensatory mitigation plan for the Proposed Project is even feasible.**

The Coast Salmon Partnership agrees with the many citizens and officials who believe a comprehensive strategy is needed to address the needs of people, communities, and fish and wildlife that inhabit the Chehalis River basin. Further, we recognize that the salmon entering the ocean from this river are of importance to people and communities at a far broader geographic scale. And we agree with the conclusion of the DEIS: **the flood retention expandable facility (FRE) will have negative and high environmental impacts.** Loss of a major spawning area for spring Chinook salmon, one of the most

imperiled salmon species in the Chehalis River basin and important as food for the endangered South Resident Killer Whales, should be unacceptable to the people of Washington.

The Coast Salmon Partnership encourages continued work to find solutions that will address the complex problems facing flooding, agriculture, and fisheries in the Chehalis River basin. We acknowledge there are conflicting viewpoints among citizens and decision makers as to whether a flood-control dam is needed. As described in this letter, we have significant concerns that the Proposed Project will not support long-term needs of fish or people in the basin and that the DEIS has not adequately explored alternatives that may provide better solutions than the Proposed Project. Thank you for considering our comments.

Sincerely,



Tom Kollasch, Chair  
Coast Salmon Partnership



## DETAILED COMMENTS OF COAST SALMON PARTNERSHIP

### Interested Party Background

The Coast Salmon Partnership is a regional salmon recovery organization formed in response to the Salmon Recovery Act (RCW 77.85) passed by the Washington State legislature in 1999. The geographic range for our organization spans nearly four million acres on the outer coast of Washington State and includes all watersheds that flow directly into the Pacific Ocean, including the Chehalis River.

The Coast Salmon Partnership brings together diverse local partners and scientific experts to protect and restore salmon runs of Washington's outer coast, which has some of the best remaining salmon populations in the contiguous United States. Our work is guided by the *Washington Coast Sustainable Salmon Plan* which has the primary goal to "prevent additional ESA listings of Washington Coast salmon and further diminished salmon populations through sustainability instead of ESA recovery planning" (WCSSP 2013). We put people to work with on-the-ground habitat restoration and protection projects, aiming to ensure the long-term health of our state's iconic salmon while creating local family-wage jobs.

### Summary of Comments

The Chehalis River basin has been a home for people, fish, and wildlife for millennia. This river was the source of abundant wild salmon runs and has supported tribal fishing, including treaty fishing rights, as well as recreational and commercial fisheries. Current salmon runs are severely reduced in number, often resulting in closures of these fisheries. The floodplains and lands of the river valley support agriculture and timber production, outdoor recreation, local communities, interstate commerce and habitat for aquatic species. Flooding has been a part of the Chehalis River basin for millennia and plays an important ecological function for this watershed. Winter floods have also been the source of substantial damage to the people and communities who have settled in the floodplains of the Chehalis River basin.

The Coast Salmon Partnership agrees with the many citizens and officials that believe a comprehensive strategy is needed to address the needs of people, communities, and fish and wildlife that inhabit the Chehalis River basin. Further, we recognize that the salmon entering the ocean from this river are of importance to people and communities at a far broader geographic scale. The currently Proposed Project to build a flood retention expandable facility (FRE, Proposed Project) in the headwaters of the Chehalis River and to augment the existing Chehalis-Centralia airport levee warrants a careful examination. Based on information provided by the DEIS, we note that a substantial amount of flood damage will continue even if the FRE is constructed and offer the following summary of our concerns:

The DEIS concludes the FRE will have high environmental impacts. We agree with this conclusion. The Proposed Project will increase the water temperatures upstream and downstream of the facility and temporarily block access to juvenile salmon seeking cool water upstream of the facility. Alternative actions, which may be far less environmentally harmful, are disregarded and their contribution to flood damage reduction is not evaluated. There is a great uncertainty whether mitigation could successfully replace what has been lost if the Proposed Project goes forward. Among those losses will be a major spawning area for spring Chinook salmon. Spring Chinook salmon are the most imperiled salmon in the Chehalis River basin and important food for the endangered South Resident Killer Whales, an icon of Pacific Northwest culture. In sum, we have significant concern whether the Proposed Project will contribute to a solution that meets the long-term needs of the Chehalis River basin.

We offer the following specific, and equally ranked, concerns regarding the Proposed Project and the DEIS:

- The Proposed Project will exacerbate current stresses on salmon in the Chehalis River basin.
- The DEIS results and conclusions are incomplete and possibly erroneous because the DEIS fails to include climate change impacts in the analysis.
- The DEIS underestimates impacts of the Proposed Project on steelhead.
- The DEIS underestimates impacts of the Proposed Project on Southern Resident Killer Whales.
- The DEIS should use a revised set of metrics to select additional alternatives.
- Mitigation would be needed and yet is uncertain. The DEIS does not address whether a compensatory mitigation plan for the Proposed Project is even feasible.

We provide a more detailed explanation for each of these concerns below.

### **Detailed Comments**

The Proposed Project will exacerbate current stresses on salmon in the Chehalis River and set back more than two decades of effort to protect and restore salmon habitat. Environmental conditions of the Chehalis River basin are already degraded. The recent 10-year abundances of salmon and steelhead are far below historical values from the early 1900s. Floodplain development, culvert fish barriers, historical splash dams and clearing of large trees, dynamic ocean conditions, and the establishment of non-native fish species have degraded salmon habitat. Climate change is predicted to intensify stress on salmon populations in the future. Our organization works with restoration groups across the Chehalis River basin to improve fish habitat and offset the anticipated impacts of climate change. The Proposed Project will work contrary to the two decades of investment in restoring water quality and salmon habitat in the basin and will impact the amount of water (quantity), the water temperature (quality), and the ability of juvenile salmon to access cold water (fish passage):

- *Water quantity.* Construction of the FRE facility will remove an additional 75 to 150 million gallons of water from the river with 80% of the water removal occurring in a 10 to 20-month period (DEIS p. 54). The DEIS concludes that water withdrawals during construction will have low impact on surface water hydrology (DEIS p. 78). However, these additional water withdrawals will certainly influence both fish and the agricultural communities downstream that are already stressed by summer low flow conditions. Summer stream flows in the vicinity of the FRE facility (Doty) are currently below minimum instream flow threshold required under WAC-173-522, and there have been just 8 years between 1929 to 2015 that the Chehalis River basin had no days below the minimum instream flow (DEIS p. 54). When minimum instream flows are not met in the basin, landowners with junior water rights may be required to stop withdrawing water. For example, 2019 was the fifth consecutive year that the Washington State Department of Ecology issued curtailment orders to 93 junior water right holders in the Chehalis Basin.
- *Water quality.* During the summer months, water temperature in the Chehalis River upstream of the FRE facility already exceeds water quality standards set by the Washington Department of Ecology (DEIS Appendix G, p. 99). Operation of the FRE facility will cause stream temperature to increase an additional 2°C due to the removal of trees from the riparian areas surrounding the temporary reservoir (DEIS Appendix G, p. 99). Further, the temperature increases caused by operation of the FRE facility will extend downstream to the junction with Elk Creek. The Chehalis River upstream of the FRE facility location is currently an important summer rearing area for juvenile salmonids and temperature increases in this area will further restrict their summer

rearing habitat (Winkowski et al. 2018). Temperatures that are too warm will decrease dissolved oxygen, stress fish metabolism, and increase fish susceptibility to disease.

- *Fish passage.* There are currently more than 1,300 known culvert fish passage barriers in the Chehalis River basin that restrict salmon access to needed habitat ([Washington Department of Fish and Wildlife online database](#)). During the five years of construction of the FRE facility, there will be limited or no upstream fish passage for juvenile salmon during the 24-month period when the river is diverted through the bypass tunnel portals. Recent studies demonstrated upstream movements of juvenile salmon and steelhead through the proposed FRE location and conclude that juveniles undergo these migrations to seek cooler water temperatures during the summer seasons when downstream temperatures approach lethal limits (Winkowski and Zimmerman 2017). Construction of the FRE facility will block juvenile salmon and steelhead access to the cool waters they need, compounding the already substantial impacts of both culvert fish barriers and warm stream temperatures in the basin.

The DEIS results and conclusions are incomplete and possibly erroneous because the DEIS fails to include climate change impacts in the analysis. Climate change is anticipated to result in larger and more frequent floods during the winter months and lower stream flows with higher temperatures during the summer months (Tohver et al 2014, Mauger et al 2016). These anticipated changes are large enough they will likely adversely affect both flooding and fish in the Chehalis River basin. Indeed, scientists preparing the model outputs for the DEIS acknowledged that “Including climate change predictions in the mid- and late-century scenarios would dramatically alter species responses across the basin and might change conclusions about effects of the proposed project on the four modeled salmonid species.” (DEIS Appendix K, EDT Modeling Report p. 46).

Several key results of the DEIS would likely change if climate change impacts were included in the analysis. First, flood benefits described in the DEIS are likely inaccurate as other analyses have predicted that the both amount of water and the 100-year floodplain will increase by 2080 (Washington Department of Ecology, SEPA Draft Environmental Impact Statement Appendix N). Second, the negative impacts of FRE facility operation are likely underestimated (Alternative 1 or 2). Because the DEIS did not include climate change in the analysis, the DEIS has underestimated the frequency with which the reservoir will be filled and therefore underestimated the impacts of FRE facility operation, including fish passage and riparian habitat degradation. Specifically, more frequent filling of the reservoir will also increase impacts from the upstream trap and haul operation and disruption to downstream fish passage. This is especially relevant for impacts to adult coho salmon and steelhead that migrate upstream during peak months of the anticipated dam operation. Further, more frequent filling of the reservoir will increase riparian habitat degradation and have resulting impacts on both water quality and fish habitat. This is especially relevant for impacts to adult spring Chinook salmon and juvenile salmon and steelhead that use the area of the river upstream of the FRE facility location during the summer months when degraded riparian habitat has its greatest effects on water quality.

The DEIS underestimates impacts of the Proposed Project on steelhead. According to the analysis presented in the DEIS, impacts to steelhead during the five years of construction will include a 53% reduction in the project area above Crim Creek but no impact to steelhead at a basin-wide scale (DEIS Appendix K, Figure 4-8, Table 4.5-2). However, results from recent studies indicate that there is likely to be a far greater basin-wide impact on steelhead during the five years of FRE facility construction.

First, the DEIS analysis assumes 5.6% of steelhead habitat in the basin occurs upstream of the FRE facility (DEIS Appendix K, EDT Modeling Report Table 4-4). However, recent studies have demonstrated that closer to 15% of the adult steelhead in the Chehalis River basin spawn upstream of the FRE facility location (Ronne et al. 2020, data also provided in DEIS Table 4.5-1). Recent studies have also shown that juvenile steelhead migrate upstream of the FRE facility location during the summer months, presumably

to find cooler water temperatures (Winkowski and Zimmerman 2017). Taken together, these studies demonstrate that the proportion of Chehalis River basin steelhead impacted by the FRE facility is closer to 15% than 5.6%, and a 53% reduction on more than 15% of the population is certain to have a larger basin-wide impact than is currently reported in the DEIS.

Second, the DEIS analysis should include impacts on the genetic diversity of steelhead. Recent genetic studies have revealed that steelhead in the Chehalis River basin are not a single population, and there are at least three distinct genetic groupings associated with the lower, middle, and upper basin (Seamons et al 2017). The upper basin genetic grouping includes steelhead spawning in the South Fork Chehalis River and upper Chehalis River. Impacts of FRE facility construction will have a far larger impact on this genetic grouping of steelhead than on the other two genetic groups in the Chehalis River basin.

Third, the model used for the DEIS analysis should include repeat spawners that are an important component of the steelhead life cycle and critical to the long-term stability of steelhead populations (Moore et al. 2014). The DEIS describes the range of repeat spawning rates known for steelhead (DEIS p. 119), and the zero percent assumed in the EDT model used for the DEIS analysis is most certainly outside of this range (DEIS Appendix K, Integrated EDT-Lifecycle Modeling of Salmonids p. 15). Repeat-spawning steelhead will be particularly vulnerable to fish passage through the FRE facility because of the multiple exposures to impacts in both the upstream (handling) and downstream (temporary lack of passage) directions. Repeated impacts on more than 15% of the basin-wide steelhead population is certain to have a larger impact than is currently reported in the DEIS.

The DEIS underestimates impacts of the Proposed Project on Southern Resident Killer Whales (SRKW). Scientific study has demonstrated that the SRKW feed in the vicinity of Grays Harbor during winter months (Hanson et al. 2013). NOAA Fisheries is currently considering a proposed rule that would revise SRKW critical habitat to include coastal waters from Washington to California (84 FR 49214). Spring Chinook salmon are the primary prey of the SRKW and the Proposed Project will degrade one of just three currently important spawning areas for spring Chinook salmon in the Chehalis River basin, putting the SRKW at increased risk of insufficient prey resources. Further, any actions that further degrade spring Chinook salmon in the Chehalis River basin will pass the burden and cost of rebuilding SRKW populations to other rivers and other communities across the Pacific Northwest.

The Proposed Project is likely to have a far greater impact on SRKW than identified in the DEIS. The DEIS concludes that there will be a low indirect impact to SRKW because Chehalis River Chinook salmon are not currently a significant dietary source for the SRKW. If one considers the relative numbers of spring Chinook salmon currently produced by the Chehalis River, this conclusion appears to be supported. However, the rationale is faulty and lacks historical context. A proper context for the DEIS should start with the observation that SRKW numbers are currently depleted and that prey availability is one of the key factors contributing to their endangered status (Southern Resident Orca Task Force 2019). Increased availability of spring Chinook salmon from the Chehalis River should benefit SRKW recovery, especially when the SRKW feed near Grays Harbor. Conversely, further depletion of the spring Chinook salmon from the Chehalis River should have a high negative impact on these endangered marine mammals.

The DEIS should use a revised set of metrics to select additional alternatives to the Proposed Project. The DEIS evaluated 2 of the 61 alternatives considered for the Proposed Project. The two action alternatives selected for evaluation were a flood retention expandable facility (FRE, the Proposed Project) and a flood retention only (FRO) facility. These alternatives were so similar that the DEIS found minimal to no differences when evaluating their impacts on the natural and built environment.

A more appropriate set of metrics is needed to expand the list of alternatives to the Proposed Project that are considered. The applicant's goal for the Proposed Project is to "reduce flood damage in the upper Chehalis River Basin" (DEIS, p. 1). In order to screen alternatives that may achieve this goal, the DEIS used the flood levels, or amount of water, at four river gages on the Chehalis River mainstem

between Adna and Grand Mound. However, there is a difference between flood reduction and flood damage reduction. While flood reduction can be measured by the amount of water at a particular river gage, flood damage reduction is better measured by the amount of damage to structures and properties caused by increased flooding. Indeed, alternatives listed in DEIS Appendix D as local alternatives and other alternatives (p. D-5 to D-7) may allow for flood damage reduction without any changes to the amount of water flow recorded by the river gages. An updated selection of alternatives is needed and should be based on the ability of that alternative to reduce damage to infrastructure and property rather than the amount of flooding alone.

There are compelling reasons to want a side-by-side comparison of the flood damages expected under the local action alternatives versus the Proposed Project. The set of local actions considered by the DEIS would likely have much less impact to aquatic species and their habitat than the Proposed Project and may have substantial flood damage reduction benefits. A previous analysis found that “approximately 75% of residential structures and 25% of other structures within the Chehalis River floodplain could feasibly be floodproofed” (DEIS Appendix D, p. 3). Although the DEIS provides estimates of flood damage reduction to valuable structures provided by an FRE facility (DEIS Table 5.4-3), it does not provide similar estimates of flood damage reduction were these valuable structures to be raised, retrofitted, or floodproofed without an FRE facility. Due to the lack of analysis provided, we are unclear whether the Proposed Project will offer additional flood damage protection beyond that of an alternative based on local actions.

Mitigation is needed and yet is uncertain. The DEIS does not address whether a compensatory mitigation plan for the Proposed Project is even feasible. The collective wisdom gained from 20 years of salmon recovery in Washington state is that protecting existing habitat is far more certain and less costly than restoring degraded habitat. The outcome of any mitigation is uncertain, and the recovery of fish numbers, once lost, is hard to quantify and impossible to guarantee. Therefore, we have substantial concerns whether compensatory mitigation for the Proposed Project could be either ecologically effective or cost effective.

The DEIS describes actions to compensate for unavoidable impacts to aquatic and terrestrial resources and provides nine mitigation types identified by the applicant, including riparian buffer expansion, hyporheic exchange enhancements, and cold-water retention structures (DEIS p. 269). However, the DEIS lacks any evaluation of whether or how likely these actions are to compensate for negative impacts of the Proposed Project. For example, benefits of riparian buffer expansion will be realized after multiple decades of tree growth and will do very little to offset impacts during the five years of FRE facility construction and the early years of FRE facility operation. Benefits of hyporheic exchange enhancements, while plausible, are largely experimental in their implementation and have yet unknown ability to compensate for negative impacts of the FRE facility. Also unknown is whether mitigation actions implemented in a different location from the FRE facility will benefit salmon and steelhead that spawn and rear near the FRE facility location. A lack of alignment between the spatial impact of the Proposed Project and the spatial impact of the compensatory mitigation is of particular concern given recent genetic studies that demonstrate spatial structure to the salmon and steelhead populations in the Chehalis River basin (Seamons et al. 2017; Thompson et al. 2019, Seamons et al 2020).

During the first five years of construction, salmon numbers upstream of the FRE facility are predicted to decline by more than 1,000 fish, an approximately 61% decline from current conditions. There is absolutely no certainty that mitigating for habitat loss will translate into recovery of salmon numbers that have declined due to construction of the FRE facility.

## **Conclusion**

Nearly two decades ago, Governor Locke stated that “Extinction is not an option” for salmon in Washington State and initiated the statewide strategy for salmon recovery. That motto – extinction is

not an option – has fueled a huge investment in salmon across Washington state, including more than \$40 million invested in the Chehalis River alone. The significant and adverse impacts of the Proposed Project on fish and wildlife will work counter to the significant investment already made to restore the Chehalis River basin and will increase the cost and uncertainty of future investments.

Flooding in the Chehalis River basin causes many problems, and solutions to these problems need to be solutions for both people and fish. Alternatives that provide solutions for people but exacerbate problems for fish will not offer a true solution for the Chehalis River basin. Similarly, alternatives that provide solutions for fish but exacerbate or maintain problems for people also fall short of a true solution. The Coast Salmon Partnership encourages continued work to find solutions that address the complex problems facing flooding, agriculture, and fisheries in the Chehalis River basin. As described in this letter, we believe that the Proposed Project will not support long-term needs of fish or people in the basin and that the DEIS has not adequately explored alternatives that may provide better solutions than the Proposed Project. Thank you for considering our comments.

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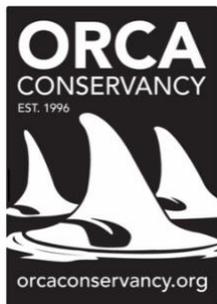
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November 15, 2020

Sent electronically via [chehalis@usace.army.mil](mailto:chehalis@usace.army.mil)

Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street  
Suite 125  
Portland, Oregon 97219

RE: National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) | Chehalis River Basin Flood Damage Reduction Project | NWS-2014-1118

Dear Anchor QEA,

Thank you for the opportunity to comment on the National Environmental Policy Act (NEPA) Draft Environmental Impact Statement, Chehalis River Basin Flood Damage Reduction Project | NWS-2014-1118. Please add the following comment(s), including our comment to the Department of Ecology dated May 26, 2020 (attached below), to the administrative record.

Orca Conservancy is a 501(c)3 Washington State non-profit organization, established in 1996, with the mission of working on behalf of *Orcinus orca*, the killer whale, and protecting the wild places on which it depends. Orca Conservancy currently represents over 40,000+ members and supporters, and collaborates with some of the world's top research institutions and environmental groups to address the most critical issues now facing wild orcas. The organization's urgent attention continues to focus on the remaining 74 members of the now critically endangered population of Southern Resident killer whales (SRKW). The SRKW population is comprised of three pods (identified as J, K, and L pods) and is arguably the most familiar killer whale population to the general public.

The Chehalis River remains one of Washington's most important salmon (and steelhead) producing watershed in the state. The Chehalis Basin extends from hills south of Pe Ell to the southern end of the Olympic Peninsula, occupying huge chunks of Lewis, Thurston and Grays Harbor counties. Its 2,700 square miles are veined with a network of 3,400 miles of rivers, streams and creeks that all contain numerous salmon spawning areas. The Chehalis and its tributaries provide spawning habitat for some of the only wild salmon runs in the state that are not protected under the Endangered Species Act (ESA), for now. The Chehalis watershed, while an important food source for SRKWs, is also home to The Chehalis Tribe and the Quinault

Indian Nation, as well as many vibrant small communities and some of the most productive agricultural land in the state. Historically, when European settlers first came to the Chehalis Basin, we ignored the sage advice of the indigenous peoples that have called this land home for thousands of years. We were warned to not build in the floodplain, but we chose to do so anyway leading to our current dire situation.

Several laws specifically regulate activities that could result in pollution, toxic spills, or degradation of prey habitat in the marine environment and attempt to reduce the risk of such events. These include the Clean Water Act<sup>1</sup>; the Marine Protection, Research, and Sanctuaries Act<sup>2</sup>; and the Coastal Zone Management Act<sup>3</sup>.

### **Southern Resident killer whales**

On November 18, 2005, after evaluating the five listing factors of the Endangered Species Act, 16 U.S.C. §§ 1531-1544, the National Marine Fisheries Service (NMFS) issued a final ruling listing the Southern Resident Killer Whales (SRKW), a distinct population segment (DPS), as endangered under the Act. The SRKW population is comprised of three pods (identified as J-, K-, and L- pods) and is arguably the most familiar killer whale population to the general public. It occurs primarily in the Georgia Basin and Puget Sound from late spring to fall, when it typically comprises the majority of killer whales found in Washington. The population travels more extensively during other times of the year to sites as far north as the Queen Charlotte Islands in British Columbia and as far south as Monterey Bay in California.<sup>4</sup> As NMFS recently acknowledged, “new information ... confirms that ... [S]outhern [R]esidents spend substantial time in coastal areas of Washington, Oregon and California and utilize salmon returns to these areas.”<sup>5</sup> These coastal waters are recognized as an essential foraging area for this critically endangered population in the winter and spring, and are currently under consideration to be designated as critical habitat for the SRKW.<sup>6</sup>

Southern Resident killer whales are dietary fish-specialists and depend on abundant populations of Chinook salmon for their survival, social cohesion and reproductive success.<sup>7</sup> Experts anticipate that climate change and ocean acidification will contribute to further significant declines in regional salmon abundance during the coming decades, thus impeding Southern Resident recovery.<sup>8</sup>

After over a decade of federal protection, the SRKS population has yet to show signs of significant recovery, with 74 members total as of November 2020 – now **FOURTEEN** members fewer than when they were

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<sup>1</sup> 1972. Clean Water Act. <https://www.britannica.com/topic/Clean-Water-Act>

<sup>2</sup> 1972. Marine Protection, Research and Sanctuaries Act. Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service. <https://www.fws.gov/laws/lawsdigest/marprot.html>

<sup>3</sup> 1972. Coastal Zone Management Act. <https://coast.noaa.gov/czm/act/>

<sup>4</sup> Wiles, G. J. 2004. Washington State status report for the killer whale. Washington Department Fish and Wildlife, Olympia. 106 pp.

<sup>5</sup> Michael J. Ford, Nat'l Marine Fisheries Serv., Status Review Update of Southern Resident Killer Whales 26 (2013). In fact, evidence indicates that Southern Residents spend the majority of time in coastal and offshore waters. Cf. M. Bradley Hanson, et al., Assessing the Coastal Occurrence of Endangered Killer Whales Using Autonomous Passive Acoustic Recorders, 134 J. OF THE ACOUSTICAL SOC'Y OF AMERICA 3486, 3486 (2013) [hereinafter Coastal Occurrence] (explaining that “on average the whales occur in inland waters less than half of the days each year”)

<sup>6</sup> 12-Month Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment, 80 FR 9682, published 2/24/2015.

<sup>7</sup> Center for Biological Diversity, Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale (*Orcinus orca*) under the Endangered Species Act 5 (Jan. 16, 2014)

<sup>8</sup> See, e.g. Lisa G. Crozier et al., Predicting Differential Effects of Climate Change at the Population Level with Life-Cycle Models of Spring Chinook Salmon, 14 GLOBAL CHANGE BIOLOGY 236, 237, 247 (2008) (predicting that global warming and changing ocean conditions will lower survival and fertility among all populations of Pacific salmon (*Oncorhynchus* spp.)

initially listed in 2005. Their survival remains in question and is far from guaranteed,<sup>9</sup> and the population growth needs to exceed 200 members to reach historical levels.<sup>10</sup>

Based on the natural history and behavior of the endangered SRKWs, it is imperative that prey species, specifically Chinook salmon, are of sufficient quality and quantity are available to support not only individual growth, reproduction, and development, but to further encourage the overall growth of this population. Prey depletion is recognized as one of the major threats to the survival and recovery of the SRKW community, and rebuilding depleted salmon stocks is listed as a top priority for the population.<sup>11</sup> Orca Conservancy understands the main link between the dam and orca recovery comes down to how the dam would affect Chinook salmon.

Due to Orca Conservancy's focus on advocating for recovery to allow delisting of SRKWs under the Endangered Species Act (ESA), the majority of our findings with the DEIS were failures in representing the SRKWs properly and it falls short of making recovery efforts fully discussed within the ESA.

Congress enacted the ESA, in part, to provide a "means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...[and] a program for the conservation of such endangered species and threatened species."<sup>12</sup>

Section 2(c) of the ESA establishes that it is "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act."<sup>13</sup> The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."<sup>14</sup>

Similarly, Section 7(a)(1) of the ESA directs that federal agencies shall use their programs and authorities to conserve endangered and threatened species.<sup>15</sup> To fulfill the purposes of the ESA, Section 9 of the ESA prohibits any person, including any federal agency, from "taking" an endangered species without proper authorization.<sup>16</sup> The term "take" is statutorily defined broadly as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."<sup>17</sup> The definition of "harm" has been defined broadly by regulation as "an act which actually kills or injures wildlife. Such act may include

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<sup>9</sup> Olesiuk, P. F., M. A. Bigg and G. M. Ellis. 1990. Life history and population dynamics of resident killer whales (*Orcinus orca*) in the coastal waters of British Columbia and Washington State. Report of the International Whaling Commission (Special Issue 12):209–243. Estimates neonate mortality between 37-50%.

<sup>10</sup> Palo (1972) put forth a tentative estimate of 225- 300 whales for Puget Sound and the Georgia Basin in 1970 (Palo, G. J. 1972. Notes on the natural history of the killer whale *Orcinus orca* in Washington State. Murrelet 53:22-24)

<sup>11</sup> National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington.

<sup>12</sup> 16 U.S.C. § 1531(b).

<sup>13</sup> Id. at § 1531(c)(1).

<sup>14</sup> Id. at § 1532(3).

<sup>15</sup> Id. at § 1536(a)(1).

<sup>16</sup> Id. at § 1538(a)(1)(B).

<sup>17</sup> Id. at § 1532(19).

significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”<sup>18, 19</sup>

Additionally, Congress passed the Clean Water Act (CWA) to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters,” 33 U. S. C. §1251(a); see also PUD No. 1, 511 U. S., 700, 714, the “national goal” being to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.” 33 U. S. C. §1251(a)(2). Section 401 is a critical piece of the CWA which was specifically written to block or reduce environmental impacts from fossil fuel pipelines, hydroelectric and other dams, cooling water intakes, large commercial and housing developments, mining, dredging, and other destructive projects that require a federal license or permit.

Thirty years ago, in the landmark case *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, Washington State established that its § 401 certification authority reached *all* water quality impacts of federally permitted dams. The United States Supreme Court agreed with Washington that, under § 401, the existence of any discharge at a federally permitted dam gives Washington the authority to address *all* of that dam’s impacts to water quality. This includes temperature in the reservoirs, spill over the dams, total dissolved gas, and salmon migration. Despite a decline in salmon runs of 80% over the last 30 years, the Chehalis River Basin remains one of the most important producers of wild fish in Washington State and is one of the few places left in the state where no salmon species are currently listed as threatened or endangered

The DEIS fails to consider the effects of inbreeding on jeopardy to Distinct Population Segment (DPS) survival. Maintaining constant numbers will result in loss of genetic diversity and increased inbreeding, both of which reduces the likelihood of recovery. That is, a plan that does not contribute toward significantly increasing SRKW numbers results in *jeopardy*. In his ruling on the Maury Island gravel mine case, Judge Martinez noted that even small threats to an already endangered population were likely to result in jeopardy. Thus, this DEIS should conclude that the preferred alternative is likely to adversely affect SRKWs which will result in jeopardy to the DPS’ survival.

It is unfortunate that NEPA does not model future climate conditions in its analysis of how the proposed facility would fully and detrimentally impact the environment. It did, however, acknowledge that the environmental impacts of the facility could be worse given the impacts of climate change. The proposed dam would severely threaten this ecosystem and degrade critical fish and wildlife habitat, while not effectively controlling flooding.

Climate change will result in more frequent and intense flooding events and larger flood damage if immediate and sweeping actions are not taken. Taking climate change into account, water temperatures eventually would be raised by 9 degrees. With warmer temperatures anticipated during winter months, wintertime precipitation would shift from snow to rain in the higher elevations of the basin adding slope instability, resulting in increased potential for debris flows, mudflows, and landslide in the steeper portions of the Chehalis basin. In addition, 90 percent of trees in the area of the temporary reservoir, stretching more than 6 miles, would be removed. When the reservoir fills, it would flood 847 acres, killing more trees and vegetation.

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<sup>18</sup> 50 C.F.R. § 222.102; see also *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687 (1995) (upholding same regulatory definition of harm in 50 C.F.R. § 17.3).

<sup>19</sup> 2018. Center for Biological Diversity and Wild Fish Conservancy’s 60-day notice of intent to sue the U.S. Department of Commerce, the Secretary of Commerce, the National Marine Fisheries Service (also known as NOAA Fisheries), and the Northwest Regional Administrator for the National Marine Fisheries Service (collectively “NMFS”) for violations of the Endangered Species Act (ESA), 16 U.S.C. §§ 1531, et seq.

Construction also would eliminate salmon spawning areas, and reduce salmon survival, with significant impacts on spring and fall run chinook, Coho, steelhead, and other native fish including lamprey, according to the Department of Ecology (DOE).

As noted in the DEIS, these runs are supposed to decline 70% due to climate change, therefore making it clear that in order to recover the SRKWs, we need to ensure all steps are taken to recover Chinook runs by mitigating climate change, not by moving projects forward that contribute to climate change. Therefore, a 70% decline in Chinook numbers due to climate change would need to be offset in order to maintain the current status quo. Riparian habitat improvement must be expansive enough to not only offset future declines in marine survival, but freshwater survival needs -- at minimum -- to at least double even if marine survival remained the same to allow delisting.

Downstream of the structure, water temperatures would be elevated and decreased oxygen levels would degrade water quality in the river for 20 miles. Spawning habitat would be eliminated and fish passage mortality increased. Therefore, decreased water quality and increased temperatures would result in significant and long-term impacts for spring-run and fall-run Chinook salmon, coho salmon and steelhead. These impacts would be sustained after construction is finished. However, on the scale of the whole Chehalis Basin, the statement concluded that the impacts would be high for spring-run Chinook.

Spring Chinook are particularly important for Southern Resident killer whales (SRKWs) for the same reason Columbia River and Klamath River Spring Chinook are important. Spring Chinook migration timing occurs when SRKWs are pregnant and/or lactating and who heavily rely on Spring runs which are especially rich in fat and have the highest caloric value.

The environmental review only looks at one part of the strategy still in the making — the structure — and doesn't consider other flood reduction measures; mitigation for the dam; or a companion fish enhancement plan still to be determined, let alone evaluated.

Therefore, based on the modeling in the DEIS, the number of structures inundated during major flooding and catastrophic flood events by 2080 will remain incredibly high, even with the proposed dam. During flooding events, which are likely to happen in late fall and winter, about 500 acres of land could be underwater by the temporary reservoir for anywhere from 4 - 25 days, killing native species including Douglas firs, red alders, big leaf maples and western hemlocks. Additionally, operation of the facility could also reduce dissolved oxygen concentrations upstream and increase chlorophyll levels upstream. A 1,165-foot section of the Chehalis River would be rerouted during construction, and about 450 feet of the river would be permanently replaced by the retention facility, according to the statement. Mahaffey Creek would also need to be temporarily diverted during construction.

With an expected price tag of about \$1 billion, this proposed dam on the Chehalis River will be a huge burden on taxpayers and deliver only minimal benefits to a small portion of the basin in return.

These natural floodplains and riparian areas are not just a location for flood problems. They also perform some very valuable natural functions. Probably the most important natural function of the area's floodplains is to provide habitat for aquatic species. Unfortunately, aquatic species in the Chehalis River Basin are

significantly diminished from their historic level. Salmon habitat in the Basin already is degraded by 44%–78%, depending on the species.<sup>20</sup>

Orca Conservancy appreciates all the time and energy placed into creating this NEPA DEIS. However, we strongly encourage the U.S. Army Corps of Engineers to stand back and reject permit approval until further notice. This is due, in part, to the EIS failing to paint a complete picture of the proposed project. Therefore, we need to look at actions and find alternatives that are environmentally-sensitive. Additionally, there is a dire need for an alternative plan to coincide with the goal of increasing fish habitat which focuses on recovery of the critically endangered SRKW population while including a resilience to climate change. All of which must be brought forth as an objective.

Sincerely,



Shari Tarantino  
Executive Director

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<sup>20</sup> 2020. City of Chehalis. Natural Floodplain functions.



May 26, 2020

Sent electronically to: <https://chehalisbasinstrategy.com/eis/comment-form/>

Chehalis River Basin Flood Damage Reduction Project EIS  
Anchor QEA  
1201 Third Ave., Suite 2600  
Seattle, WA 98101

RE: Proposed Chehalis River Basin Flood Damage Reduction Project Environmental Impact Statement

Dear:

Thank you for the opportunity to provide comments on the Proposed Chehalis River Basin Flood Damage Reduction Project (Project) draft Environmental Impact Statement (DEIS). Please accept as the official filing from Orca Conservancy the following letter:

Orca Conservancy wishes to thank the Department of Ecology (Ecology) for extending the comment period during the coronavirus pandemic. As you are well aware, restrictions on activities due to COVID-19 have been in place in Washington throughout the comment period and have severely limited opportunities to meet with colleagues efficiently and have hindered access to written materials in libraries that are not readily available online. We would also like to point out that this coronavirus pandemic is a direct result of human activity and their involvement towards the degradation of natural habitat.<sup>21</sup> Orca Conservancy opposes this Project as a direct form of blatant destruction of a vital and much needed ecosystem.

Orca Conservancy also wishes to note that we are appalled at the amount of habit degradation and destruction listed within the Project DEIS; the destruction of species unable to move to another location during construction and operations of this proposed Project; and the willful choice of not honoring treaties with the Confederate Tribes of the Chehalis and the Quinault Indian Nation who currently call the Chehalis River Basin home. That said, our comments will be limited to specific effects the Project will have on recovery

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<sup>21</sup> 2020, Proceedings of the Royal Society B, <https://doi.org/10.1098/rspb.2019.2736>

efforts of the critically endangered Southern Resident killer whale (SRKW) population and the potential for listing another salmonid *Evolutionarily Significant Unit* (ESU) on the ESA should this project move forward.

Orca Conservancy is a 501(c)(3) Washington State non-profit established in 1996 with the mission of working on behalf of *Orcinus orca*, the killer whale, and protecting the wild places on which it depends. The organization's urgent attention is on the remaining 72 members of the critically endangered SRKW population.<sup>22</sup> Orca Conservancy currently represents over 38,000+ members and supporters, and collaborates with some of the top research institutions and environmental groups in addressing the most critical issues facing wild killer whales.

Orca Conservancy takes issue with the Project DEIS' finding that, "*Construction and operation would also have a moderate adverse impact on Southern Resident killer whales.*"<sup>23</sup> Previous to this statement, it is noted that the Project will have a significant adverse impact upon Chinook salmon, the SRKW's preferred food. We are unclear how this interpretation was reached and believe that moving this Project forward will have a significant adverse effect on SRKW's as a Distinct Population Segment (DPS). This includes the Project's human destruction of yet another salmon run which, again, is not in best interest of the SRKW's. For species that are endangered due to exploitation, protecting a subset of the range can be sufficient to ensure survival of the species. However, for species endangered by habitat degradation alone, as is the case for SRKW's, bold changes are needed if we are truly committed to assisting with the survival of the SRKW's population. Meaning; mortality rates are closely correlated to coastwide Chinook abundance, and recent Chinook population crashes in the mid 1990s and late 2000s have resulted in significant losses to the SRKW's population.<sup>24</sup> SRKW's engage in all types of behavior throughout their range. While lactating, it is likely that mothers require 2-4 times more food than they do at other stages of their life cycle. This requires large, contiguous areas with elevated prey density (due to the mobile nature of their prey, there is temporal fluctuation in prey density at a given geographic location).

Due to our primary focus being on advocating for delisting of SRKW's under the ESA, the majority of our findings with the Project DEIS completely fails to represent the SRKW's properly and it falls short of making recovery efforts fully discussed within the ESA. Congress enacted the ESA, in part, to provide a "*means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...[and] a program for the conservation of such endangered species and threatened species.*"<sup>25</sup> Section 2(c) of the ESA establishes that it is the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.<sup>26</sup> The ESA defines "conservation" to mean "*the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.*"<sup>27</sup> Similarly, Section 7(a)(1) of the ESA directs that federal agencies shall use their programs and authorities to conserve endangered and threatened species.<sup>28</sup> To fulfill the purposes of the ESA, Section 9 of the ESA prohibits any person, including any federal

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<sup>22</sup> 2020. Center for Whale Research

<sup>23</sup> <https://fortress.wa.gov/ecy/publications/parts/2006002part1.pdf>

<sup>24</sup> Ford, J.K.B, G.M. Ellis, P.F. Olesiuk, and K.C. Balcomb III. 2010. Linking killer whales survival and prey abundance: food limitation in the oceans apex predator? *Biology letters* 6(10): 139-142; Ward, E.J. E.E. Homes and K.C. Balcomb III 2009. Quantifying the effects of prey abundance on killer whale reproduction. *Journal of Applied Ecology*, 46(3):632-640.

<sup>25</sup> 16 U.S.C. § 1531(b).

<sup>26</sup> *Id.* at § 1531(c)(1).

<sup>27</sup> *Id.* at § 1532(3).

<sup>28</sup> *Id.* at § 1536(a)(1).

agency, from “taking” an endangered species without proper authorization.<sup>29</sup> The term “take” is statutorily defined broadly as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”<sup>30</sup> The definition of “harm” has been defined broadly by regulation as “an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”<sup>31, 32</sup>

The SRKW population is the most intensively studied population of marine mammals in the world, and the best available science tells us that healthy wild Chinook salmon runs are critical to SRKW recovery. The SRKWs historic use of west coast waters qualifies this community as an important resource to the states of Washington, Oregon, and California, and therefore SRKWs should be considered when evaluating the potential impact of moving forward with the Project.

As NMFS recently acknowledged, “new information ... confirms that ... [S]outhern [R]esidents spend substantial time in coastal areas of Washington, Oregon and California and utilize salmon returns to these areas.”<sup>33</sup> These coastal waters are recognized as essential foraging areas for this critically endangered population in the winter and spring, and are currently under consideration to be designated as critical habitat for the SRKW<sup>34</sup>, which will include a much larger and densely populated portion of the Chinook salmon range along the Pacific coast. Therefore, the Project DEIS gets it wrong by stating, “Operations would have significant adverse impacts on these fish. Construction and operation would also have a moderate adverse impact on Southern Resident killer whales.” A moderate impact which would lead to extinction is unacceptable. Therefore, Ecology needs to explain how they plan to recover a population that is small and declining by making things worse. And, in doing so will need to include an additional comment period.

The Project DEIS does not portray an accurate description of the distribution of SRKWs and this impacts the decision being proposed. It is duly noted that between 1976 and 2004 there had been only 11 documented sightings in United States (U.S.) coastal waters.<sup>35</sup> However, between 2006 and 2011, 131 acoustic detections were collected by deploying acoustic recorders in seven locations on the continental shelf of the U.S. west coast from Cape Flattery, WA to Pt. Reyes, CA to detect and record endangered SRKWs. Detection rates of SRKWs were greater in 2009 and 2011 than in 2006 - 2008, were most common in the month of March, and occurred with the greatest frequency off the Columbia River and Westport, which was likely related to the presence of their most commonly consumed prey, Chinook salmon.<sup>36</sup> The use of passive acoustic recorders has greatly increased the knowledge of seasonal and annual occurrences of SRKW in the coastal waters of the

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<sup>29</sup> Id. at § 1538(a)(1)(B).

<sup>30</sup> Id. at § 1532(19).

<sup>31</sup> 50 C.F.R. § 222.102; see also *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687 (1995) (upholding same regulatory definition of harm in 50 C.F.R. § 17.3).

<sup>32</sup> 2018. Center for Biological Diversity and Wild Fish Conservancy’s 60-day notice of intent to sue the U.S. Department of Commerce, the Secretary of Commerce, the National Marine Fisheries Service (also known as NOAA Fisheries), and the Northwest Regional Administrator for the National Marine Fisheries Service (collectively “NMFS”) for violations of the Endangered Species Act (ESA), 16 U.S.C. §§ 1531, et seq.

<sup>33</sup> Michael J. Ford, Nat’l Marine Fisheries Serv., Status Review Update of Southern Resident Killer Whales 26 (2013). In fact, evidence indicates that Southern Residents spend the majority of time in coastal and offshore waters. Cf. M. Bradley Hanson, et al., Assessing the Coastal Occurrence of Endangered Killer Whales Using Autonomous Passive Acoustic Recorders, 134 J. OF THE ACOUSTICAL SOC’Y OF AMERICA 3486, 3486 (2013) [hereinafter Coastal Occurrence] (explaining that “on average the whales occur in inland waters less than half of the days each year”).

<sup>34</sup> 12-Month Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment, 80 FR 9682, published 2/24/2015.

<sup>35</sup> 2004. Krahn, et al.

<sup>36</sup> 2013. M. Bradley Hanson, a, Candice K. Emmons, and Eric J. Ward. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders.

United States. Satellite tracking of individual SRKWs also revealed the extent to which they used Pacific coastal waters, and their focus on the migratory routes of Chinook for most of this time. Further, use of this portion of the range has increased as Fraser River Chinook runs have declined, indicating Chinook runs from the Chehalis River Basin, as well as the Columbia River Basin (the two largest river basins in Washington) are likely to be more important in the coming years than they were in the first 40 years of intensive study of SRKWs.

As noted in the DEIS, these runs are supposed to decline 70% due to climate change, therefore making it clear that in order to recover the SRKWs, we need to ensure all steps are taken to recover Chinook runs by mitigating climate change, not by moving projects forward that contribute to climate change. Therefore, a 70% decline in Chinook numbers due to climate change would need to be offset in order to maintain the current status quo. Riparian habitat improvement must be expansive enough to not only offset future declines in marine survival, but freshwater survival needs -- at minimum -- to at least double even if marine survival remained the same to allow delisting. To continue large scale habitat degradation such as the Project is like being in a hole and continuing to dig – it just doesn't make sense.

The DEIS fails to consider the effects of inbreeding of *jeopardy* to the Distinct Population Segment (DPS) survival. With only 72 members of the SRKW population remaining, maintaining constant numbers will result in loss of genetic diversity and increased inbreeding, both of which reduces the likelihood of recovery. That is, a plan that does not contribute toward significantly increasing SRKW numbers results in *jeopardy*. In his ruling on the Maury Island gravel mine case, Judge Martinez noted that even small threats to an already endangered population were likely to result in *jeopardy*. Thus, the DEIS should have concluded that the proposed project is likely to significantly adversely affect SRKWs and result in jeopardy to the DPS' survival.

Since the Project DEIS is able to conclude that, "*Construction and operation would also have a moderate adverse impact on SRKWs*", this Project is walking a fine line against the guidelines set forth in "*Jeopardy*" under the Endangered Species Act (ESA). Section 7(a)(1) directs that the Secretaries of Interior and Commerce use programs administered by these departments "in furtherance of the purposes" of the ESA.<sup>37</sup> Similarly, this section requires that all other federal agencies, in consultation with the Secretaries, also exercise their authorities to advance the ESA's purposes by "carrying out programs for the conservation" of listed species.<sup>38</sup> In addition, section 7(a)(1) mandates that ALL federal agencies "insure" that all actions they authorize, fund, or carry out are not likely to "jeopardize the continued existence of" listed species or "result in the destruction or adverse modification: of critical habitat of threatened and endangered species."<sup>39</sup> ALL federal agencies, including Ecology, have an obligation to insure independently that their actions do not jeopardize the continued existence of listed species.<sup>40</sup> The best available science makes it quite clear that SRKWs are on the brink of extinction, therefore, unless exemption is granted by the so-called "God Squad,"<sup>41</sup> which would need to vote to allow SRKWs to go "extinct", federal agencies may not fund, authorize, or carry out actions that US Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) concludes are likely to jeopardize listed species with inevitable extinction.

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<sup>37</sup> 16 U.S.C. §1536(a)(1) 1999. Congress set forth the ESAs purposes in the first section of the statute.

<sup>38</sup> Id.

<sup>39</sup> Id. At §1536(a)(2). 2000. In joint regulations implementing section 7, FWS and NMFS have taken the position that these section 7 prohibitions do not apply to actions of federal agencies carried out in other countries. See 50 CFR § 402.01(a).

<sup>40</sup> See Pyramid Lake Paiute Tribe v. U.S. Navy, 898 F.2d. 1410, 1415 (9<sup>th</sup> Circuit 1990).

<sup>41</sup> In 1978, Congress amended the ESA to empower a cabinet-level "Endangered Species Committee" to exempt actions from the strictures of section 7. See 16 USC § 1536(e)-(o). The Committee's power over the very existence of species on the brink of extinction earned it the nickname of the "God Squad."

The DEIS makes numerous references to the degradation of salmon habitat:

- Construction and operation of the Proposed Project would have a significant adverse impact on aquatic habitat from the headwaters of the Chehalis River to the middle mainstem
- The removal of vegetation, increase in temperature, and reduced water quality would negatively affect aquatic habitat and species. Construction and operation would have significant adverse impacts on spring-run Chinook salmon, fall-run Chinook salmon, Coho salmon, and steelhead from degraded habitat, noise, and fewer fish surviving passage around the FRE facility
- These significant impacts on fish and aquatic species and habitat would be unavoidable unless the Fish and Aquatic Species and Habitat Management Plan and other mitigation plans meet regulatory requirements and implementation is feasible<sup>42</sup>

The DEIS also notes more than eleven times throughout the document that, *“There is uncertainty if mitigation is technically feasible and economically practicable; therefore, the Proposed Project would have significant and unavoidable adverse environmental impacts on fish and aquatic species and habitat.”*<sup>43</sup> Again, Orca Conservancy finds and agrees that moving forward with this project would cause irreparable destruction of needed habitat for Chinook salmon, leading to their almost certain listing on the ESA. The critically endangered SRKW cannot survive another decimated Chinook salmon run.

The DEIS does perform a thorough analysis of the Project. In fact, the findings of the DEIS clearly support Ecology to move against this project to ensure it does not move forward.

The DEIS though did not do a good job of researching the Local Actions Alternative. Orca Conservancy suggests the following as preferred alternatives to the Project in order to improve flood reduction:

- Allowing uninhabited areas to flood, which slows down flood waves heading for settled are-as, stores groundwater for summer use, and restores soil for agriculture.
- Replacing undersized culverts to prevent water from backing up and flooding nearby homes, buildings, and towns during heavy rain events
- Promote reverting farms along the river back to forested floodplain (along the lines of the Iow/Napa models). Adding high flow channels where reclaiming flood plain is not feasible would be less desirable. But, if designed so that fish have access to low flow side channels and are not at risk of being stranded when flood waters recede, could be acceptable. Floodplains by Design is a Washington State program that would be appropriate to invoke here
- In addition to referring to the importance of trees for climate change, it’s also important to mention their ability to prevent flooding by spreading out the time it takes water to reach the ground, transpiring water back into the air, and creating a spongy soil that can hold water. Floodwater flowing

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<sup>42</sup> <https://fortress.wa.gov/ecy/publications/parts/2006002part1.pdf>

<sup>43</sup> Id.

around trees can carve channels that lower the ground. Nurse logs can get trees up off the ground so they can survive flooding

- Trees also play an important role in salmon recovery. Additionally, this approach not only addresses flooding, it does it in a way that benefits rather than harms endangered species
- Strategies within the Room for the River initiative also include moving structures and residents out of floodplains and preventing new construction within these zones. Flooding disasters cost the US taxpayers more than 54 billion dollars annually. It is not unreasonable to move citizens to safer areas out of harm's way. Areas within the US, including the Iowa Corridor River Project and the Napa River/Napa Creek Flood Control Project, are utilizing these strategies with success<sup>44</sup>

Most river basins around the world suffer from anthropogenic influences, and climate change is a universal phenomenon. To successfully manage a river basin, it is necessary to understand the recent geologic history and the human management trajectory of the system, and to understand how our management of these river basins has had the unintended consequence of contributing to climate change. The DEIS notes that, "construction and operation would cause over 123,000 metric tons of greenhouse gas emissions" and that "90% of the trees in the 600-acre temporary reservoir would be removed during construction . . . 847 acres would be temporarily flooded when the reservoir holds water killing trees and vegetation."<sup>45</sup> The construction of the Project and the operations of the Project add to climate change via greenhouse gas emissions and destruction of forest limiting carbon sequestration.

If we are serious about the impact climate change has on flooding, then we need to ensure that the methods we choose to mitigate flooding due not in fact lead to increasing climate change, in essence, we need to not fall into a *Catch-22*. Therefore, the only safe way forward is to follow the Room for the River strategies, which protect against flooding, reduce flooding, and do not add to climate change.

A new regionally-led approach is urgently needed with Northwest policymakers working closely with the region's stakeholders, sovereigns, and citizens to craft a lawful, science-based plan that protects against flooding, while recovering salmon and SRKWs and invests in vibrant fishing and farming communities for current and future generations.

Lastly, Orca Conservancy believes strong leadership from the Department of Ecology is mandatory in guiding the Pacific Northwest (PNW) to a place where abundant wild salmon and steelhead populations once again support communities, livelihoods, and honor treaty rights, but most importantly wild salmon is needed to sustain the critically endangered SRKWs. The remaining 72 SRKWs are a totem species and an icon not only in the state of Washington, but the entire PNW. As an organization that has been advocating for this population's recovery since 1996, it is undeniable that this population is trying incredibly hard to continue its existence within its core habitat. It is also undeniable that we, as humans, continue to create obstacle after obstacle which undermines the SRKWs rightful existence. Enough is enough. Trying to prevent flooding is a fool's errand. Better to spend the money adapting to the environment than trying to adapt the environment to impractical building placement.

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<sup>44</sup> <https://blogs.ei.columbia.edu/2011/06/07/making-room-for-rivers-a-different-approach-to-flood-control/>

<sup>45</sup> <https://fortress.wa.gov/ecy/publications/documents/2006002.pdf>

*“The problems faced by orcas and salmon are human-caused, and we as Washingtonians have a duty to protect these species. The impact of letting these two species disappear would be felt for generations.”*  
Governor Jay Inslee <sup>46</sup>

Sincerely,



Shari Tarantino  
Executive Director

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<sup>46</sup> <https://medium.com/wagovernor/inslee-signs-executive-order-to-protect-orcas-chinook-salmon-8eb97d00b41d>



**American Rivers**  
RIVERS CONNECT US®



November 17, 2020

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Submitted electronically via: <https://chehalisbasinstrategy.com/eis/nepa-draft-eis-comment-form/>

**RE: American Rivers and Trout Unlimited Chehalis Basin Flood Damage Reduction Project NEPA Environmental Impact Statement Comments**

Dear Mr. Clinton,

American Rivers and Trout Unlimited (TU) are grateful for this opportunity to comment on the Chehalis River Basin Flood Damage Reduction Project Draft Environmental Impact Statement (DEIS). We commend the collaborative effort to develop, fund, and implement the ambitious and much needed Chehalis Basin Strategy.

TU and AR strongly agree that flood damage reduction actions are a critical piece of the strategy to address the impacts of flooding on the Basin's communities. The 2007 flood devastated families and businesses in the Chehalis Basin, and we preface our comments with the acknowledgement of this incredible suffering and the need to find a solution that brings safety and peace-of-mind to the people of this watershed. We are keenly aware of the years of careful analysis of various flood damage reduction alternatives, and we commend the efforts made as part of the Chehalis Basin Strategy to find a solution that works for both people and fish.

American Rivers believes every community in our country should have clean water and a healthy river. Since 1973, we have protected wild rivers, restored damaged rivers and conserved clean water for people and nature. With headquarters in Washington, D.C., offices across the country, and over 350,000 members, supporters, and volunteers, we are the premier river conservation organization in the United States, delivering solutions that will last for generations to come.

Trout Unlimited is North America's largest non-profit organization dedicated to the protection, conservation, and restoration of cold-water fish and their watersheds. With over 300,000 members and supporters – including 4,000 members in the state of

Washington – and over 220 staff, our strength is derived from our grassroots members and volunteers working together with our staff toward the common goal of ensuring resilient fish populations for future generations. TU is dedicated to using the best available science to guide our efforts, and we have the benefit of applying the expertise of our staff fisheries scientists to support efforts requiring careful analysis, such as the one at hand. Trout Unlimited is an organization dedicated to conserving, protecting and restoring North America's coldwater fisheries and their watersheds, and our analysis of the DEIS reflects that mission.

Together, our organizations have been working collaboratively with the Washington Department of Ecology's Office of Chehalis Basin since its creation. In 2016, TU and AR submitted joint comments on the Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement (PEIS). In our letter, we expressed several concerns for both the Flood Retention and Flow-Augmentation (FRFA) and Flood Retention Only (FRO) dam proposals and opposed the construction of either of the dam alternatives based on the information presented in the PEIS.

In 2017, American Rivers completed an in-depth investigation of flood reduction actions that had been considered in the Basin over the past three decades. This investigation uncovered previously considered actions that are overlooked in today's Strategy, as well as "lessons-learned" from past studies that are still pertinent today. Conclusions from this research bring valuable perspective to the decision-making processes currently underway in the Chehalis and inform our input to the public review process.

In 2018, the Chehalis River Basin Flood Control Zone District (District) proposed to advance the large-scale flood reduction components of the Chehalis Basin Strategy first, including the construction of a new dam and levee improvements. TU and AR submitted scoping comments and raised numerous concerns that the proposed large-scale flood reduction projects would have marginal flood reduction benefits at enormous cost to the citizens of Washington state and to the health of the Chehalis River Basin.

In 2020, our organizations remain committed to finding a solution to reduce flood risk and restore aquatic species habitat in the Chehalis Basin. We currently serve on the Aquatic Species Restoration Plan (ASRP) Implementation Planning Team and the Implementation Advisory Group for local flood damage reduction actions. It is this deep understanding of the Chehalis Basin and experience that inform our comments today.

After careful review of the DEIS, we must oppose the Proposed Project, due to the significant environmental and cultural impacts, and because we believe the impacts are contrary to the integrated goals of the Chehalis Basin Strategy. In addition, both the Quinault Indian Nation and the Chehalis Tribe have expressed opposition to the construction of a dam on the upper Chehalis River above the town of Pe Ell, Washington, and we stand with tribes and must honor their legal rights.

For these reasons, we respectfully request that the U.S. Army Corps of Engineers (USACE) deny a Section 404 permit under the Clean Water Act for the Proposed Project.

We offer more detail on our concerns in the comments below:

### **The proposed project does not meet the stated purpose of the Chehalis Basin Strategy**

The proposed project reviewed in this DEIS includes a flood retention expandable (FRE) facility and Airport Levee Improvements.

NEPA requires Environmental Impact Statements to “briefly specify the underlying purpose and need for the proposed action. When an agency’s statutory duty is to review an application for authorization, the agency shall base the purpose and need on the goals of the applicant and the agency’s authority.” (40 CFR § 1502.13).

Per section 2.1 of the DEIS, “The purpose of the proposed project is to reduce the risk of flood damage in the Chehalis/Centralia area from catastrophic flooding. The target area is the 100-year floodplain of the Chehalis River from Adna to Grand Mound (Figure 2.1-1). For the purposes of this DEIS, a catastrophic flood is defined as a 100-year flood. A 100-year flood has a 1% chance of happening each year.”

The proposed projects will reduce the 100-year floodplain within the target area by 11% - the number of structures flooded in a catastrophic flood by 54%. It will also reduce flooding on I-5, a stated goal of the project. However, these estimates are based on the current 100-year flood and do not factor in climate change. Given that the DEIS analysis period is 2025-2080, the Corps should evaluate whether the proposed project will provide the intended level of protection based on the predicted 100-year flood in 2080. The DEIS does not evaluate future conditions resulting from climate change which show that flooding is expected to increase by up to 50% by 2080 potentially negating any flood risk reduction from the dam and making the way for increased development in the floodplain. Once these types of calculations (which are commonplace in the state of Washington) are considered, the overall flood risk reduction long-term is substantially diminished, and the proposed project could inadvertently allow more people to live in harm’s way.

AR and TU have significant concerns that the proposed project is incompatible with the tenants of integrated flood management being pursued in the Chehalis Basin. The primary purpose of the Office of Chehalis Basin is to “aggressively pursue implementation of an integrated strategy and administer funding for long-term flood damage reduction and aquatic species restoration in the Chehalis river basin” - HB 2856 - 2015-16. Central to this mission is to reduce flood damage throughout the entire Chehalis Basin. However, the stated purpose of the proposed project is limited to

reducing **“the risk of flood damage in the Chehalis/Centralia area from catastrophic flooding.”** While there are other approaches to flood risk reduction being proposed, this is by far the most expensive and developed concept and still falls short of meeting the intended purpose of the Office of Chehalis Basin.

The proposed project seeks to address the problem of flooding (albeit partially) at a very significant cost to fish populations. As such, it seems inconsistent with the objectives of the Chehalis Basin Strategy, which is to fix both problems in tandem. Certainly, we would not set out to restore fish populations by implementing a series of habitat actions that significantly exacerbate flood risk in downstream communities. Similarly, the proposed project does not meet its statutory obligation and undermines restoration efforts that are intended to be synergistic. Its narrow focus falls short in that it fundamentally does not meet the intended goal to reduce flood damage and restore aquatic species habitat in the basin and thus is not a viable alternative for the Chehalis Basin Strategy.

### **The proposed project would provide a false sense of security**

The proposed dam would reduce the 100-year floodplain in the short term resulting in a false sense of security downstream and potential for development in the previously flooded areas. As is common below dams, there is significant risk of hazard creep— an increase in development in the floodplain following construction of a dam because it no longer floods on a regular basis. This connection is acknowledged throughout the DEIS - “reduced risk could result in a low increase in growth and development in the floodplain”.

Across the country trillions of local, state and federal dollars have been spent trying to protect at risk communities from flooding when many of those costs could have been avoided by simply building elsewhere, e.g. not in a floodplain, in the first place. Single purpose infrastructure projects have been proven to fail time and time again providing a false sense of security for people living and working in the floodplain. While this would be a new facility, designed to modern standards, it would still have a limited lifespan.

As occurred this May, 2020 in Michigan, failure of dams and flood protection facilities can occur, particularly during severe storms, forcing communities behind levees and downstream of dams to evacuate or result in a loss of life and property. Reliance on a dam will inevitably result in increased floodplain development at risk during a flood that exceeds the design or in the event of a catastrophic dam failure.

### **The proposed project does not address climate change**

The DEIS estimates the proposed project would reduce the 100-year floodplain within the target area by 11%. However, the DEIS also acknowledges that precipitation is likely to increase up to 10% in winter months due to climate change. Climate projections from the University of Washington's Climate Impacts Group, estimate peak flows may

increase by up to 50% by 2080<sup>1</sup>. The impacts due to climate change would negate intended flood reduction from the proposed project. This increase coupled with increased development would ultimately result in more people put in harm's way.

NEPA regulations require agencies, when assessing the environmental impacts of proposed actions, to address *direct* effects “caused by the action and [that] occur at the same time and place”; *indirect* effects, those “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable”<sup>2</sup>; and *cumulative* effects, which result 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.”<sup>3</sup> Effects from climate change should be considered under these indirect and cumulative effects requirements, yet they are not included in this DEIS.

**Future climate conditions were not modeled in this DEIS so the true extent of flood damage reduction from these alternatives long-term cannot be fully understood.**

#### **Lack of reasonable alternatives**

According to section 40 CFR § 1502.14, a NEPA review DEIS shall “evaluate reasonable alternatives to the proposed action, and, for alternatives that the agency eliminated from detailed study, briefly discuss the reasons for their elimination.”

The DEIS states that USACE analyzed a total of 61 potential alternatives based on three main criteria:

1. **Geographic Area of Flood Damage Reduction:** Flood damage from a 100-year flood must be reduced between USGS river gage 12021800 near Adna to USGS river gage 12027500 near Grand Mound.
2. **Flood Damage Reduction Metrics:** 100-year flood elevations must be reduced at key locations.
3. **No Substantial Increase in Redirected Negative Impacts:** Changes in the 100-year floodplain cannot increase flood damages in other segments of the basin.

Criteria #2: Flood Damage Reduction Metrics pre-supposes that the only way to reduce flood damage is to reduce flood elevations and thereby extent. That is not the case. Flood damage is a result of structures constructed in areas of regular inundation. Reducing flood damage could also occur by utilizing a wide variety of nonstructural and

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<sup>1</sup> October 29, 2020 Chehalis Basin Board Memorandum - Climate Change Modeling Near and Long Term Recommendations. *Mauger, PhD, Guillaume, et al. Climate Change Modeling Near- and Long-Term Recommendations. Chehalis Basin Board, 2020.*

<sup>2</sup> 42 C.F.R § 1508.8

<sup>3</sup> 42 C.F.R § 1508.7

nature-based approaches to flood management including removing structures from the floodplain or preventing their construction in the first place, eliminating flood damage altogether and increasing safety long term.

The requirement for Flood Damage Reduction Metrics to reduce flood elevations at key locations taints the entire alternative selection processes and potentially eliminates viable reasonable alternatives because they didn't meet this prescriptive criterion.

Examples of non-structural and nature-based approaches are shown throughout Appendix D. According to table 1.1-1, five of the non-structural "Local Actions" and "Other Actions" evaluated, met criteria one and three but failed to meet criteria two (Flood Damage Reduction Metrics). Instead of reducing flood elevations these actions proposed to reduce flood damage by adapting existing structures and land uses to be more compatible with flood events.

The mechanisms and programs that can be utilized to implement non-structural actions such as open space preservation, acquisition and relocation and higher regulatory standards are common best floodplain management practices. They have been established over decades, are varied and span multiple federal agencies including the Federal Emergency Management Agency, Department of Housing and Urban Development, Natural Resources Defense Council, etc.

The alternatives analysis included multiple combinations of activities however, all combinations included major structures of dams and/or levees. The combinations did not include robust combinations of non-structural alternatives, alterations to transportation routes, nature-based approaches, etc. Therefore, it is not possible to adequately determine whether the desired flood damage reduction goals could be obtained by a combination of these components.

**The DEIS developed criteria that excluded non-structural or transportation actions. This is a serious misstep that eliminated many viable reasonable alternatives from evaluation and ensured that a dam would be the only alternative evaluated.**

Alternatives 1 and 2 in the DEIS are so similar that the executive summary chose to group the impacts together because there was not significant difference in impacts. Both alternatives are dams. In fact, both alternatives are almost identical dams. The main difference being that Alternative 1 has a 20' larger foundation and could be expanded in the future.

The intent of an alternatives analysis is to inform decision makers about options they can pursue to meet their goal. By using such narrow criteria, USACE made a dam the only option. This does not help to inform decision makers – it pits one option against no

option and limits opportunities to meet the overarching needs of the Chehalis Basin Strategy. USACE should pursue additional alternatives that reduce flood damage long-term and have limited environmental impacts.

### **Lack of needed Cost Benefit Analysis**

Given the magnitude of the project and cost, failure to do a Cost Benefit Analysis (CBA) is a significant omission. While not required by the USCAE, a fundamental goal of NEPA is to inform decision makers and that cannot be done without a true presentation of costs and benefits.

Without a CBA the methods that were used to estimate the proposed project costs or the potential impact cannot be determined. At \$566 million, the proposed project is significantly lower than earlier estimates that showed that the dam alone would be \$670 million<sup>4</sup>. Some of this difference can be explained by the fact that the proposed project costs in this DEIS do not include things like new road construction, land acquisition, permitting costs and “various soft costs”. The costs for things like road construction could be significant considering the land above the dam is working timberland and the proposed project would destroy the existing access road.

The economic outcomes of the proposed project were determined to be beneficial to income, employment and government revenues while having a high impact to ecosystem services. Impacts to water quality, wetlands, and wildlife are all estimated and presented in the DEIS, but the cost of the proposed project to the services that these ecosystems provide are not. FEMA has now adopted a policy to allow the full value of ecosystem services to be evaluated. As part of the federal government, USACE should follow a similar standard and include the value of ecosystem services into their analysis of project impacts.

It is estimated that the proposed project would result in 1,433 local jobs during construction. That may seem significant at first glance, however, the University of Oregon and NOAA, estimate that approximately 16.7 jobs are created per \$1 million invested in watershed restoration<sup>5</sup> <sup>6</sup>. This metric is now used by Puget Sound Partnership, the Floodplains by Design Program and Washington Office of Financial Management (OFM) to calculate the jobs created from their projects. This number could feasibly be applied to local flood damage reduction actions and would result in over 9,400 jobs – 85% more jobs than the construction of the proposed project.

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<sup>4</sup> <https://www.seattletimes.com/seattle-news/environment/quinalt-indian-nation-opposes-new-dam-on-chehalis-seeks-alternatives/>

<sup>5</sup> Nielsen-Pincus, M. and C. Moseley. 2010. Economic and Employment Impacts of Forest and Watershed Restoration in Oregon. University of Oregon: Ecosystem Workforce Program, Working Paper Number 24. <http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/downloads/WP24.pdf>.

<sup>6</sup> Edwards, P.E.T. et. al. 2012. Investing in Nature: Restoring Coastal Habitat, Blue Infrastructure, and Green Job Creation. Marine Policy. <http://dx.doi.org/10.1016/j.marpol.2012.05.020>.

Additionally, smaller flood damage reduction projects support more local jobs overall. The University of Oregon found that 80% of project spending from watershed restoration projects stayed within the community. While the proposed project would produce some local jobs, it would also rely on a significant amount of expertise, materials and labor from outside the Chehalis Basin.

Together, the amount of local jobs and economic activity produced through local actions could outweigh the economic benefits of the proposed project. However, it is impossible to determine for sure without a more inclusive alternatives analysis and CBA.

### **The proposed project would have significant adverse environmental impacts**

The DEIS presents many significant negative impacts from the proposed project. The DEIS states the following resources areas would experience substantial adverse cumulative impacts: Water quality and quantity; Geology and geologic hazards; Aquatic species and habitats; Terrestrial species and habitats; Cultural Resources; Socioeconomics; and Environmental justice. Furthermore, the DEIS notes the FRE structure would result in the following Environmental Consequences: Aquatic Habitat - construction impacts; Habitat Loss and Impairment; Increased Water Temperatures; Reduced Fish Passage; Decreased Dissolved Oxygen; Increase in Total Suspended Solids and Turbidity; Decreased Supply and Transport of Large Woody Material; Reduced Supply of Prey Resources; and Decrease in Overhanging Vegetation.

We respectfully understand the proposed project's attempt to reduce flood damage in the basin, however, we believe the flood retention structure being proposed in Alternatives 1 and 2 are not a viable and effective solution. With so much uncertainty regarding cost/benefit and feasibility of mitigation, we cannot support the proposed FRE structure.

Regarding environmental impacts presented in the DEIS, we are particularly concerned about:

- 1) Direct impacts to salmonid populations
- 2) Direct impacts to habitat
- 3) Direct impacts to watershed function

#### **Direct Impacts to Salmonid Populations**

Construction of the FRE facility would result in substantial adverse impacts on salmonid abundance, productivity, spatial structure, and diversity. These four metrics (abundance, productivity, spatial structure, and diversity) are used in Viable Salmonid Populations (VSP) status assessments, and they are key to evaluating population viability for three reasons. First, they are considered to be reasonable predictors of

extinction risk. Second, they reflect general processes that are important to all populations of all species. Third, VSP parameters are measurable (McElhany et al, 2000). The DEIS reports that the proposed FRE facility would negatively impact all VSP parameters for salmon and steelhead.

The construction period, while only 5 years, could have a long-lasting impact on the modeled species due to its low passage survival rates and degraded habitat. Indeed, all species were predicted to decline by large percentages above the proposed structure during the construction period. In the project area above Crim Creek, coho salmon abundance is predicted to decline 72%, spring-run Chinook salmon abundance to decline 78%, fall-run Chinook salmon abundance to decline 40%, and steelhead abundance to decline 53% during the construction period.

Negative impacts from the FRE facility include: decreased water quality, including increased temperature and decreased dissolved oxygen, changes to habitat-forming processes (i.e., increases in fine sediment, decreases in substrate size, decreases in the supply and transport of Large Woody Material (LWM), and reduced peak flows), reduced supply of prey resources, increase in non-native species, and reduced fish passage.

The EDT modeling results presented in the DEIS predict in late century with the proposed FRE structure:

- All species under all modeled water years were predicted to decline in abundance in the project area Above Crim Creek.
- Spring-run Chinook salmon were completely wiped out in the Above Crim Creek portion of the project area during 10- and 100-year flood flow years.
- EDT diversity of all four species was indicated to decline in the project area in late-century under average flow conditions, reducing the potential life history configurations and successful spawning areas for all species.
- For all modeled species, habitat potential in the Above Crim Creek Sub-basin was significantly reduced by implementation of the proposed FRE structure.

Additionally, we are concerned about the trap and haul strategy to pass adult salmon past the FRE site. Trap and haul strategies have failed in many other locations, and the cost and detrimental impacts of this strategy are well documented. We also have real concerns regarding the potentially high mortality of emigrating juvenile salmon and steelhead through the FRE site during seasonal migrations.

Impacts to salmonid spatial structure - The proposed project would cause a decline in spatial structure for all salmonids at some level. Given the considerable impacts to habitat that the proposed action would have above Crim Creek, we don't believe there would be any way to maintain or improve productivity for salmon and steelhead in this

reach if the FRE is constructed. The best outcome that could be achieved via mitigation (and one we feel is unrealistic) would require a trade-off between reduced populations within this reach and increased populations elsewhere in the Basin. This type of shift in spatial structure would have negative impacts on salmon and steelhead population viability, and is especially critical to avoid in the case of spring Chinook because they are the least abundant anadromous salmonid in the Basin; their spatial distribution in the basin already is limited; and there are possible genetic issues related to spring and fall Chinook inter-breeding.

Impacts to salmonid population diversity - The DEIS clearly states the proposed FRE facility represents a significant impact to the genetic, physiological, morphological, and behavioral diversity of the salmon and steelhead in the Chehalis Basin. Coho salmon and steelhead found at - and upstream from - the proposed FRE facility are genetically distinct from coho salmon and steelhead in lower river areas. Additionally, Chinook salmon genetic structure (both spring-run and fall-run) within the Chehalis Basin indicates that populations comprise upstream (South Fork and upper Chehalis River, Newaukum River, and Skookumchuck River) and downstream groups (Wynoochee, Wishkah, Satsop, Black, and Chehalis mainstem rivers; Brown et al. 2017). As such, any decline of Chinook salmon, coho salmon, or steelhead in the upper basin due to the Proposed Action would represent a significant loss of genetic diversity from Chehalis Basin populations.

Impacts to the invaluable area above the FRE facility - In particular, the portion of the Chehalis Basin that is above Crim Creek is especially important for the persistence of salmon and steelhead. Climate change models suggest that within the downstream reach between Crim Creek and Rainbow Falls, spring Chinook, Coho, and steelhead could be extirpated by late century under the No Action Alternative, but the reach above Crim Creek maintains productivity in late century with the No Action Alternative. This reach is already critical for salmon and steelhead production and will become more important in the face of climate change, as fish seek coldwater refugia at higher elevations in the Basin. Of significant concern is the fact that climate change effects were not included in this NEPA analysis.

Under the proposed FRE facility action alternative, productivity in the reach above Crim Creek would be significantly decreased for spring Chinook, fall Chinook, coho, and steelhead. For example, extirpating winter steelhead in this reach would mean extirpation of 15% of the winter steelhead in the Chehalis Basin. We have significant concerns that the proposed project's impacts to salmon and steelhead productivity will result in many, if not all, of these species ultimately being petitioned for listing under the Endangered Species Act.

Impacts to spring Chinook - The DEIS notes this species' spawning distribution is the most limited of the modeled salmonid species, which means that impacts to any of these spawning areas individually could have a substantial impact on the species at the Chehalis Basin level. In a study conducted by Thompson et al. (2019a), field identifications of Chinook salmon as spring-run were associated with high rates of error (mis-identifying genetic fall-run Chinook salmon as spring-run), indicating that the total basin-wide population is likely smaller than estimated.

As noted in the DEIS Appendix K, the spring-run Chinook salmon abundance was estimated to decrease by 78% with the FRE structure. This means that the habitat potential dropped from between 60 and 70 fish to around 15 fish because of construction. This low of an estimate indicates that the population in this portion of the river could be at risk of not being viable. A viable population is one which has little to no risk of extinction over the next 100 years as a result of genetic change, demographic randomness, or normal levels of environmental variability (McElhany et al. 2000). In addition, a viable population should also be able to withstand catastrophic events and long-term demographic and evolutionary changes (McElhany et al. 2000). It is unclear if such a small population of Chinook salmon above the FRE facility would be viable during construction. We believe that risking this level of decrease in spring Chinook abundance as a result of the FRE facility in the Above Crim Creek modeled reach is unacceptable and will almost certainly eliminate the genetically unique spring Chinook population that utilize this reach.

Impacts from increased range of non-native predatory fish - The DEIS modeling predicts increase in water temperature, which could expand the range of warm water predators into the flood retention facility project area and immediately downstream of the facility to RM 100. This is of grave concern considering non-native predatory fish are wreaking havoc all over Washington and impeding salmon and steelhead restoration and conservation efforts. Mitigating this impact would be impossible in our opinion.

### **Direct impacts to habitat and water quality**

Construction of the FRE facility would result in direct losses of spawning and rearing habitat, while also creating a migration obstacle for fish that attempt to access spawning habitat further upstream and for juvenile fish seeking high quality rearing habitat. Additionally, the proposed FRE facility would almost certainly render the habitat within the inundation zone unsuitable for salmonids. The reach of the Chehalis River and tributaries upstream from the proposed FRE facility contains some of the most productive salmon and steelhead habitats in the entire basin. For example, 15% of the steelhead produced in the basin come from the upper Chehalis River, which represents only 4% of the total habitat.

The DEIS notes that the FRE facility would result in several high impacts on aquatic habitat. Potential impacts include high permanent losses and long-term degradation of aquatic habitat in the Chehalis River. Affected habitat includes the permanent loss of 2.05 acres of essential fish habitat (EFH) for coho salmon and Chinook salmon, as well as Washington Department of Fish and Wildlife (WDFW) priority instream habitat for coho, Chinook, steelhead, and coastal cutthroat. The DEIS states that for all four modeled salmon and steelhead species, habitat potential in the Above Crim Creek Sub-basin was significantly reduced by implementation of the proposed FRE structure.

Impacts to aquatic habitat during operation would result from high losses of instream habitat, high increases in river temperature, decreases in dissolved oxygen, increased turbidity, and changes to habitat-forming processes. Changes in habitat-forming processes include changes in sediment amount, decreases in substrate size, decreases in the supply and transport of LWM, and reduced peak flows.

As previously noted, the Project Area in the Above Crim Creek Sub-basin represents a significant proportion of the salmon and steelhead spawning in the upper Chehalis Basin. Between 2013 and 2017 WDFW spawner surveys indicated 96-100%, 72-100%, 28-67%, and 27-40% of all spring-run Chinook salmon, fall-run Chinook salmon, coho salmon, and steelhead redds, respectively, surveyed in the Upper Chehalis River Basin above Crim Creek were located in the proposed reservoir inundation area (Ashcraft et al. 2017). The habitat in this area is critical for salmon and steelhead in the Chehalis Basin, and the DEIS notes that without the proposed structure, by late-century (and according to the NEPA No Action Alternative baseline), the abundance of three of the four evaluated species was predicted to increase in the project area Above Crim Creek. In contrast, the DEIS also notes the construction and operation of the FRE facility will degrade the habitat quality to a point that impacts would be impossible to mitigate at the site.

Construction of the FRE facility will also result in significant negative impacts to water quality in the reservoir and downstream reaches. Stream temperature, turbidity and dissolved oxygen are expected to exceed water quality standards as a result of the proposed project, and these issues are considered to be significant adverse impacts. The DEIS notes high permanent impairment of habitat function because of increases in water temperatures and decrease in dissolved oxygen. The effects of turbidity/siltation and dissolved oxygen depletion on salmonid redds are well documented and predictable. Trout and salmon eggs die unless cold, oxygenated water is readily available. What is more difficult to predict is the population-level effect these impacts might have on the sensitive salmon and steelhead populations in the Chehalis Basin. With so many existing uncertainties around how the facility would be operated (i.e. management plan), the frequency and magnitude of future floods, and the frequency and duration of inundation at the facility, it is difficult to quantify the water quality impacts. However, we believe that the modeled water quality exceedances will at the

very least stress the Basin's salmon and steelhead populations and would accelerate their decline.

Water temperature is already a critical limiting factor for salmon and steelhead in the Chehalis Basin, and will become even more important in the future. Given that mitigating water temperature increases that result from climate change is already an extremely difficult proposition, we can't support a proposed action that will significantly exacerbate the problem. We strongly believe that the predicted increased water temperatures will be unmitigable and will have disastrous consequences for trout and salmon in these reaches.

### **Impact to watershed function (Appendix G, J, I)**

The DEIS notes that over the life of the proposed project, there would be changes in sediment amount, a decrease in substrate size, a decrease in the supply and transport of large wood and reduced peak flows. Combined, all these impacts to habitat-forming processes significantly influence spawning and rearing habitat quality and quantity for salmonids. The DEIS notes the FRE facility would result in:

- High changes to habitat-forming processes, including an increase in fine sediment accumulation of up to 240,000 tons, reductions in the supply of LWM, and various impacts because of reduced peak flows in the footprint of the temporary reservoir.
- **Medium to high impairment of habitat function because of changes in habitat-forming processes including an overall reduction in the amount of accumulated sediment (e.g. spawning material) to RM 80, increase in fine sediment to RM 86, decreased supply and transport of LWM to RM 75, and various changes because of reduced peak flows.**

**Construction of the FRE would have negative impacts on seasonal flow patterns and natural geomorphic processes, including sediment transport and large woody debris (LWD) transport. Construction of the FRE facility would result in a reduction in channel-forming flows and important channel forming processes. It is those processes that build and maintain the habitat upon which salmon, trout, and other aquatic organisms in the Chehalis Watershed depend. We believe the DEIS does not adequately address the true impacts of disrupting natural stream processes and the ecosystem services that accompany it.**

## **The proposed project would have harmful cultural impacts**

### **Impacts to indigenous peoples and treaty rights**

According to the EIS, the “the Quinault and the Chehalis hold a connection to, and actively derive cultural and spiritual importance from, the ecosystems within the study area”. Yet, the EIS acknowledges that “the Chehalis and Quinault people, in particular, have depended on [aquatic and terrestrial species] since time immemorial and would be disproportionately adversely impacted by their diminished availability and productivity.” The tribes depend on these resources for food, fiber, economic livelihood, and cultural, educational and spiritual values and the proposed project would have “substantial impacts” to them.

The value of salmon to the local Tribes cannot be overstated. The oral history of the Chehalis Tribe tells that the first women were created from the milt of salmon and then gave birth to the chiefly lines of not only the Chehalis but also the tribes throughout the region. The proposed project is projected to reduce fish populations resulting in increased closures of the fisheries, increased regulations on fishing and the degradation of the salmon fishery which would be detrimental to the indigenous culture of this area.

As a signatory to the Treaty of Olympia (1856) the Quinault Indian Nation has the right of “taking fish, at all usual and accustomed fishing grounds and stations”. The 1974 Boldt Decision confirmed these rights and established the Quinault and other plaintiff tribes as co-managers of off-reservation fishing resources entitled to half of the harvestable number of fish returning to Washington waters. *United States v. Washington*, 384 F. Supp. 312 (W.D. Wn. 1974), *aff’d* 520 F.2d 676 (9th Cir. 1975), *cert. denied*, 423 U.S. 1086 (1976)

Traditional cultural sites, ethnographically named and associated with archaeological sites, are also exceedingly rare and important resources. Contemporary anthropological theories posit that the Chehalis Basin may have been THE entry point for the introduction and populating of humans in North America<sup>7</sup>. As a result, this watershed has potential to yield a vast amount of as yet unexplored and under-surveyed research that may reveal the area’s true cultural value for all humanity.

There are 14 archaeological sites identified within the study area that would be impacted by the proposed project – one of which is considered a Traditional Cultural Properties (TCP) under the National Historic Preservation Act (NHPA). There are also an unknown number with floodplain areas – the impact to which is mentioned but not accounted for in this DEIS. The DEIS fails to include information relating to the traditional use and location of TCP properties and additional consultation with the tribes must continue. To

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<sup>7</sup> Croes, Dale R., and Vic J. Kucera. “Entering the American Continent: The Chehalis River Hypothesis.” *Journal of Northwest Anthropology*, vol. 51, no. 2, 2017, pp. 164–183.

properly determine the impact of the proposed project, it is essential to understand the cultural significance of these sites in more detail prior to granting a permit.

The Chehalis Tribe and Quinault Indian Nation have been collaborative partners throughout the Chehalis Basin Strategy. They provide strong leadership on the Chehalis Basin Board, and we believe the Tribes have made a good faith effort to explore options that could provide both flood risk reduction and aquatic habitat restoration – a balance vital to long-term health of their communities.

Unfortunately, the Proposed Project does not live up to this balance and as a result both the Quinault Indian Nation and The Chehalis Tribe have indicated their opposition to the proposed project. Pursuing this project in the face of Tribal opposition is unacceptable. **The only option is for the USACE to deny permits for the proposed project.**

### **Impacts to private landowners**

The flood retention facility would be located on property currently owned by Weyerhaeuser and the Panesko Tree Farm and used for commercial forest. The DEIS states that the properties would be acquired to accommodate the dam and reservoir and the properties would no longer function as a commercial forest. It does not state how exactly the land would be acquired and what type of outreach has taken place with the landowners to date.

Landowner outreach and collaboration was discussed at length in the ASRP Phase 1 plan and is the lynchpin to large scale restoration in the basin. The ASRP committed to only acquiring properties on a voluntary basis. It is unclear from the DEIS whether the Proposed Project intends to follow the same standards or if eminent domain may be enacted if landowners are unwilling sell.

### **High Level of Uncertainty**

Uncertainty in this analysis poses significant risk to Chehalis salmon and steelhead populations, while not providing a clear cost benefit analysis. The inherent uncertainties in salmonids' population modeling and the fact that future climate conditions were not modeled in this DEIS make it impossible to adequately quantify impacts of the proposed actions. For example, the EDT and Integrated models used have significant assumptions and limitations. Understandably, many assumptions and limitations are inherent in this process, however, this high level of uncertainty exacerbates the risk of the proposed action to salmon and steelhead populations, in our view.

Furthermore, this characterization in the DEIS of trends in salmonid abundance through time relied primarily on integrated model results, which estimate salmonid habitat impacts within only two reaches of the mainstem Chehalis – just above and just below the FRE facility. In our opinion, the integrated model does not adequately address the possible impacts to salmonids and habitats outside of the modeled areas.

The many assumptions and uncertainties associated with DEIS modeling significantly increase the potential risk to salmonid populations already in steady decline. For example, there is significant uncertainty related to the effectiveness and impacts from trap and haul facility; impacts from the FRE facility's inability to pass all fish species or life stages; and lethal and sub-lethal impacts resulting from trap and haul (e.g. lower productivity due to elevated cortisol hormone levels in fish).

There is also significant uncertainty associated with the Proposed Project's impacts on juvenile salmon and steelhead. The DEIS analysis focuses almost exclusively on impacts to adult fish. However, substantial monitoring efforts have documented the regular migration of juvenile salmon above the dam site, and the construction and operation of the FRE facility will certainly have significant impacts to juvenile salmon, steelhead, and trout.

Additionally, predicting the recurrence interval of floods is an inexact science and continues to become more so as the climate template changes rapidly. As such, there is very little certainty in predicting the necessary frequency and duration of FRE operations. The project proponents appear to acknowledge this fact by proposing an 'expandable' structure – ostensibly to accommodate unforeseen (but expected) changes in flooding regime. If we concede that the future operation of the proposed structure is at least somewhat unknown, it stands to reason that the impacts to fish and the aquatic system will be, as well. It should also be acknowledged that the threat of FRE failure and resultant catastrophic flooding (while representing a low probability of occurrence) are very important concerns, particularly in the context of climate change where back-to-back atmospheric river events may become increasingly common.

In regard to impacts on marine mammals, the DEIS states 'low impact' during construction and operation of the FRE facility due to 'no substantial changes in abundance' for the four species of salmon and steelhead modeled. We speculate impacts to marine mammals, particularly Southern Resident Killer Whales that are ESA listed and depend primarily on Chinook salmon for prey, are severely underestimated. As clearly noted in the DEIS: In the project area Above Crim Creek, coho salmon abundance is predicted to decline 72%, spring-run Chinook salmon abundance to decline 78%, fall-run Chinook salmon abundance to decline 40%, and steelhead abundance to decline 53% during the construction period alone.

The many assumptions and uncertainties associated with this DEIS significantly increase the potential risk to salmonid populations already in steady decline. Additional uncertainties identified in the DEIS of particular concern include:

- Lack of cost / benefit analysis
- Uncertainty in the feasibility to mitigate all negative impacts
- Current and historic status of spring Chinook VSP parameters

- How the FRE structure will operate. What is FRE operation management plan?
- Effectiveness, long term cost, and impacts from trap and haul facility
- Impacts from a 10 or 100 year flood occurring during FRE facility construction
- Habitat response and long-term impacts caused by the FRE facility and inundation zone upstream
- Uncertainty how the lack of flooding would impact channel width, fine sediment levels, floodplain maintenance and formation, and riparian structure and function.
- Uncertainty related to the impacts on groundwater recharge as a result of reduced flooding.
- Uncertainty associated with the proposed project's impacts on juvenile salmon and steelhead.

## Conclusion

The Chehalis Basin Strategy is a tremendous opportunity to demonstrate how flood safety improvements can go hand-in-hand with healthy watersheds. Flood safety does not need to come at the loss of native fish and healthy rivers. Unfortunately, the Proposed Project would come at too high a cost to the environment and Tribal cultures of the Chehalis Basin. We encourage the USACE to deny permits for the proposed project and strongly encourage the development of non-dam, local action alternative that is compatible and integrated with the Aquatic Species Restoration Plan.

American Rivers and Trout Unlimited stand ready to continue working with the Chehalis Basin Board to develop and implement components of the Chehalis Basin Strategy that will reduce risk to people and infrastructure while simultaneously restoring natural processes that are critical to healthy aquatic ecosystems across the Chehalis Basin.

Thank you for the opportunity to engage in this process and for your consideration of these comments.

Sincerely,



Wendy McDermott  
American Rivers Director, Puget Sound-  
Columbia Basin



Brad Throssell  
State Chair Washington Council of Trout  
Unlimited



Brandon Parsons  
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November 17, 2020

Brandon Clinton  
Corps EIS Project Manager  
*Submitted via online portal*



**Re: Chehalis River Basin Flood Damage Reduction Project NEPA Draft Environmental Impact Statement**

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Proposed Chehalis River Basin Flood Damage Reduction Project (Proposed Project). The undersigned groups, as members of the Orca Salmon Alliance (OSA), oppose the construction of a flood retention facility and associated temporary reservoir near Pe Ell, Washington. We recognize that flooding in the Chehalis Basin has caused physical damage and emotional distress and continues to pose a risk to homes and livelihoods in the area. Reducing the impact of flooding is a critical goal in this region; however, the Proposed Project is not an acceptable solution.

The Proposed Project presents an unacceptable risk to invaluable cultural resources of the local tribes, Chehalis River salmon, and the endangered Southern Resident orcas - in both its construction and operation during floods. The DEIS itself concludes that the Proposed Project would have high adverse impacts on cultural resources, water quality, habitat, and salmonids.<sup>1</sup> In addition, the DEIS fails to address climate change and subsequent impacts to the Chehalis Basin, or describe proposed mitigation for those impacts. We cannot support the Proposed Project given the significant environmental and cultural impacts described in the DEIS.

We urge the Army Corps of Engineers (Corps) to adopt the No Action Alternative and allow Washington State to develop an alternative comprehensive plan that will mitigate flood damage throughout the Chehalis Basin without further endangering salmon and orcas or impacting tribal culture.

**The Chehalis Basin is a vibrant and important ecosystem**

The Chehalis River is the second largest river in Washington State and one of the few remaining undammed major rivers on the west coast. The Chehalis Basin is the largest watershed that originates entirely within the state of Washington, containing 180 lakes, ponds and reservoirs, and over 3,000 miles of rivers and streams. The Basin supports a wide variety of wildlife that are all part of a healthy and functioning ecosystem, including 31 salmonid stocks, none of which are currently listed as threatened or endangered under the U.S. Endangered Species Act (ESA).<sup>2</sup>

**The Proposed Project would drive Chehalis Basin salmon further into decline**

Pacific salmon have been extirpated from at least 40% of their historic habitat, and populations return at less than 3% of their historic numbers each year.<sup>3</sup> The development and alteration of watersheds, estuaries, and nearshore environments is one of the primary causes of salmon decline, and increasing ocean warming and acidification compound stressors on salmon and can further impede their survival.<sup>4</sup>

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<sup>1</sup> NEPA DEIS Executive Summary, table ES-1

<sup>2</sup><https://chehalisbasinpartnership.org>

<sup>3</sup> Lackey, R.T. 2000. "Restoring Wild Salmon to the Pacific Northwest: chasing an illusion?" pp. 91-145 in "What We Don't Know about Pacific Northwest Fish Runs? An Inquiry into Decision-Making." P. Koss and M. Katz, editors. Portland State University, Portland, Oregon; Levin, P. and M. Schiewe. 2001. "Preserving salmon biodiversity." Am. Sci. 89, 220-227.

<sup>4</sup> NOAA Fisheries. Chinook salmon: <https://www.fisheries.noaa.gov/species/chinook-salmon-protected>

Although Chehalis Basin salmon are not yet listed under the ESA, these once-abundant runs are still at risk. Their populations have seriously declined due to overfishing, habitat degradation from unregulated timber harvest, destruction of estuaries, wetlands and floodplains, and development without adequate fish passage. Spring Chinook runs in the Chehalis are estimated at 20% of historic abundance, and other salmonid species are at less than 50%.<sup>5</sup> It is estimated that the Basin's spring-run Chinook could be functionally extinct by the end of the century unless action is taken to reverse their decline.

Climate change and future development are projected to impact the Chehalis Basin's aquatic species, including salmon, through further degradation of habitat by affecting temperature and precipitation, reducing land and riparian cover, and increasing sediment in spawning and rearing habitat.<sup>6</sup> The Aquatic Species Restoration Plan (ASRP) developed by the Office of the Chehalis Basin determined that high water temperatures are the highest-priority concern for Chehalis Basin salmonids.<sup>7</sup>

The Proposed Project would lead to further loss and degradation of salmon habitat, increase river temperatures behind the dam, and exacerbate climate change impacts to the river ecosystem of the Chehalis Basin, as well as the ability of Chehalis Chinook to respond to these environmental changes. In the DEIS, the Corps itself notes that the Proposed Project would reduce salmon abundance even further below the reductions predicted from climate change alone, and would reduce additional future restoration options in the Basin.<sup>8</sup>

Indeed, a Washington Department of Fish and Wildlife (WDFW) report from December 2017 found that a dam in the Basin would impact all four salmonid populations:

The Chehalis River basin above RM 108.2 supports spawning of wild spring Chinook, fall Chinook, Coho, and Steelhead, during most of the year from mid-September to mid-June. This area of the watershed is diverse enough to provide spawning and pre-spawn holding habitat for each of these four species. All four species of salmonids could be affected with the introduction of a dam that creates an inundation footprint the size of the flood retention flow augmentation dam alternative.<sup>9</sup>

Another WDFW report from May 2018 stated that "valuable juvenile salmon and steelhead habitat, which is already limited in the Chehalis River, is likely to be negatively impacted by the construction of a dam and result in negative ramifications on the freshwater rearing portion of salmon and steelhead life cycles in this part of the river."<sup>10</sup> Moreover, the Proposed Project would further lead to declines in Chehalis Basin salmonid populations due to reduced fish passage conditions using the trap-and-haul facility. The Proposed Project poses unacceptable increased risk to these already-vulnerable salmon populations.

Chehalis steelhead, Coho and Chinook show healthy levels of genetic diversity between the upper and lower basin.<sup>11</sup> Genetic diversity of salmon stocks is key to maintaining their productivity and resilience to

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<sup>5</sup> [www.chehalisleadentity.org](http://www.chehalisleadentity.org)

<sup>6</sup> Chehalis Basin Strategy, Aquatic Species Restoration Plan, 2019, pp. 19-20, 211.

<sup>7</sup> Chehalis Basin Strategy, Aquatic Species Restoration Plan, 2019, section 5.1.4

<sup>8</sup> DEIS Executive Summary at S-8

<sup>9</sup> Ashcraft, S., C. Holt, M. Zimmerman, M. Scharpf, and N. Vanbuskirk. 2017. Final Report: Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2013-2017, FPT 17-12. Washington Department of Fish and Wildlife, Olympia, Washington.

<sup>10</sup> Winkowski, J.J., E.J. Walther, and M.S. Zimmerman. 2018. Summer riverscape patterns of fish, habitat, and temperature across the Chehalis River basin. Washington Department of Fish and Wildlife. Olympia, Washington. FPT 18-01.

<sup>11</sup> Ronne et al. 2020. Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River 2019 and Synthesis of 2013-2019, Washington State Department of Fish and Wildlife.

environmental variation.<sup>12</sup> Chehalis spring-run Chinook are genetically distinct from fall-run Chinook.<sup>13</sup> They migrate earlier in the year and experience harsher conditions than other salmon species. This makes them more susceptible to fish passage barriers because they spawn in the upper watershed, while fall-run Chinook spawn downstream of the proposed flood retention facility.<sup>14</sup> The DEIS notes high impacts to spring-run Chinook in particular due to already small population size and few spawning areas, many of which are located in the area of the Proposed Project. Modeling shows that operation of the flood retention facility would reduce the population of spring-run Chinook to fewer than 20 fish by mid-century, “putting it at risk for permanent loss in this area.”<sup>15</sup>

### **The Proposed Project does not address climate change impacts**

Although the Washington State DEIS incorporates climate change projections throughout its analyses, modeling, and baselines for all alternatives presented, the Corps’ DEIS fails to incorporate any climate change predictions, and therefore is unable to accurately predict or assess future flooding frequency or severity.<sup>16</sup>

On top of the myriad factors driving the decline of Pacific salmonid populations, climate change impacts are expected to cause an additional 22% loss of current salmon habitat.<sup>17</sup> Increasing ocean warming and acidification compound stressors on salmon and can further limit their survival. Snowpack in the Cascade Mountains has decreased by 25% since 1950 due to increasing global temperatures, and summer streamflow has decreased up to 15%.<sup>18</sup> Lower summertime streamflow can increase water temperatures to levels deadly for salmon, decrease suitable habitat, and impede migration.<sup>19</sup> For example, drought conditions in 2015 were amplified by changes to river flows caused by dams, resulting in a massive die-off of sockeye salmon in the Columbia River, and the marine heat wave of 2015/2016 also increased water temperatures in inland Washington, causing the loss of an estimated 1.5 million juvenile fish in overheated streams and rivers.<sup>20</sup>

In the DEIS, the Corps failed to address any of these realities of climate change, which pose direct and significant threat to the Chehalis Basin salmonids, and which would only be exacerbated by the construction and operation of a dam.

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<sup>12</sup>Crozier L.G. et al. 2008. Potential responses to climate change in organisms with complex life histories: evolution and plasticity in Pacific salmon. *Evol Appl.* 1(2):252–70. <https://doi.org/10.1111/j.1752-4571.2008.00033.x>; Utter F. et al. 1989. Genetic population structure of chinook salmon (*Oncorhynchus tshawytscha*), in the Pacific Northwest. *Bulletin of the United States Bureau of Fisheries*.1989;87(2)

<sup>13</sup> Thompson et al. 2019. Run-type genetic markers and genomic data provide insight for monitoring spring-run Chinook Salmon in the Chehalis Basin, WDFW contract #18-11697.

<sup>14</sup> NEPA DEIS at 4.5.222

<sup>15</sup> Ibid

<sup>16</sup> Proposed Chehalis River Basin Flood Damage Reduction Project: Draft Environmental Impact Statement. Washington Dept. of Ecology, Publication No.: 20-06-002. February 2020. <https://fortress.wa.gov/ecy/publications/2006002.html>

<sup>17</sup>USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II

<sup>18</sup>Governor's Salmon Recovery Office, "State of Salmon in Watersheds 2019," Governor's Salmon Recovery Office, Olympia, WA, 2019; G. M. a. J. Casola, "State of Knowledge, Climate Change in Puget Sound," Climate Impacts Group.

<sup>19</sup>Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. *N. Am. Journal of Fisheries Management* 22:35–51; Gustafson, R.S. et al. 2007. Pacific salmon extinctions: Quantifying lost and remaining diversity. *Conserv. Biol.* 21, 1009-1020; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. *Am. Sci.* 89, 220-227; Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. *Canadian Journal of Fisheries & Aquatic Sciences*, 71, 259-271.

<sup>20</sup>Snover, A.K. et al. 2019. "No Time to Waste. The Intergovernment Panel on Climate Change's Special Report on Global Warming of 1.5C and Implications for Washington State." University of Washington Climate Impacts Group, Seattle, WA; Washington State Southern Resident Orca Task Force. 2019. Final Report and Recommendations. Available: [https://www.governor.wa.gov/sites/default/files/OrcaTaskForce\\_FinalReportandRecommendations\\_11.07.19.pdf](https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf).

### **The Proposed Project would impact the health of the Chehalis watershed**

The Corp itself notes that construction and operation of the Proposed Project would have numerous long-term impacts on the natural environment, and further degrade aquatic and terrestrial habitat in the Chehalis Basin.<sup>21</sup> The DEIS states that the Proposed Project would result in: changes to river flows, reduced floodplain function, increased sediment, changes to groundwater, and decreased water quality conditions including temperature, turbidity, dissolved oxygen, nutrients, and chlorophyll levels. The proposed dam and temporary reservoir would drown 6 miles of critical salmon and steelhead habitat; and regular submersion of the area during floods would destroy any native vegetation along the river, resulting in permanent degradation of this key fish habitat and exacerbating climate change impacts.<sup>22</sup>

On these expected impacts alone, we cannot support the Proposed Project. The mitigation recommendations, if determined to be feasible, would require significant additional investment, resources, and permits, and even with these efforts, an important spawning area for Chehalis spring Chinook would still be lost. Mitigation would require federal and state regulators to develop and implement multiple plans to reduce the impacts from habitat loss, the removal of trees that provide shade and large woody debris for salmon habitat, degraded water quality, and impeded fish passage.

### **The Proposed Project would impact endangered Southern Resident orcas**

The DEIS states that Southern Resident orcas may experience low impacts from the slight decreases in abundance of salmon, and that it is likely they would lose a small portion of their prey. For a highly endangered population of orcas incredibly dependent on abundant and available salmon throughout their range, any decrease in salmon will result in much more than a “low impact.”

Southern Resident orcas are a genetically, acoustically, socially, and culturally distinct population of orcas (killer whales) and they do not interact or interbreed with other orca populations.<sup>23</sup> They are part of the fish-obligate “resident” ecotype, and rely almost exclusively on salmon as their primary prey.<sup>24</sup> They were listed as endangered under Canada’s Species at Risk Act (SARA) in 2003 and under the U.S. ESA in 2005, but are continuing to decline despite the protection and recovery actions initiated by these listings. The Southern Resident community now numbers just 74 orcas, their lowest population abundance in over 40 years.<sup>25</sup> Their main threats include a lack of available prey, namely due to a decline in their primary prey, Chinook salmon; environmental contaminants, particularly bio-accumulative organochlorines such as DDT, PBDEs, and PCBs; and physical and acoustic disturbance, as well as increased potential for oil spills and disease.<sup>26</sup>

The National Oceanic and Atmospheric Administration (NOAA) recently published a compilation of data collected from satellite-tagging studies, dedicated surveys, and passive acoustic monitoring, establishing that all three pods in the Southern Resident population use the coastal waters of Washington year-round and continue to target Chinook as their primary prey, with the highest use occurring during the winter and early spring.<sup>27</sup> This data was gathered in support of revising the orcas’ federally designated critical habitat

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<sup>21</sup> NEPA DEIS Executive Summary

<sup>22</sup> Proposed Chehalis River Basin Flood Damage Reduction Project, Publication No.: 20-06-002, February 27, 2020

<sup>23</sup> Hoelzel, A.R. et al. 2007. Evolution of population structure in a highly social top predator, the killer whale. *Molecular Biology and Evolution* 24: 1407-1415.

<sup>24</sup> Foote, A. D. et al. 2016. Genome-culture coevolution promotes rapid divergence of killer whale ecotypes. *Nat. Commun.* 7:11693 doi: 10.1038/ncomms11693.

<sup>25</sup> Population data from Center for Whale Research, [www.whaleresearch.com](http://www.whaleresearch.com).

<sup>26</sup> National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington

<sup>27</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>

to include their coastal range, and NOAA has identified “[p]rey species of sufficient quantity, quality, and availability” as an essential habitat feature of both current and proposed critical habitat areas.<sup>28</sup>

The data indicate that, of the total time the orcas spend in coastal habitat each year, approximately 50% of that time is spent off the coast of Washington (in Area 1 - see Figure 1), and NOAA has identified this as a high-use foraging area for the population.<sup>29</sup>

The movement of the orcas in coastal waters is likely driven by the timing of seasonal Chinook runs, and the concentration of the orcas in the area between Grays Harbor and the Columbia River is likely due to salmon returning to the Chehalis and Columbia River Basins (Figure 2).<sup>30</sup> Chinook originating in the Chehalis River are part of a Washington Coast evolutionarily significant unit (ESU) group included in the list of Southern Resident Killer Whale Priority Chinook Stocks.<sup>31</sup>

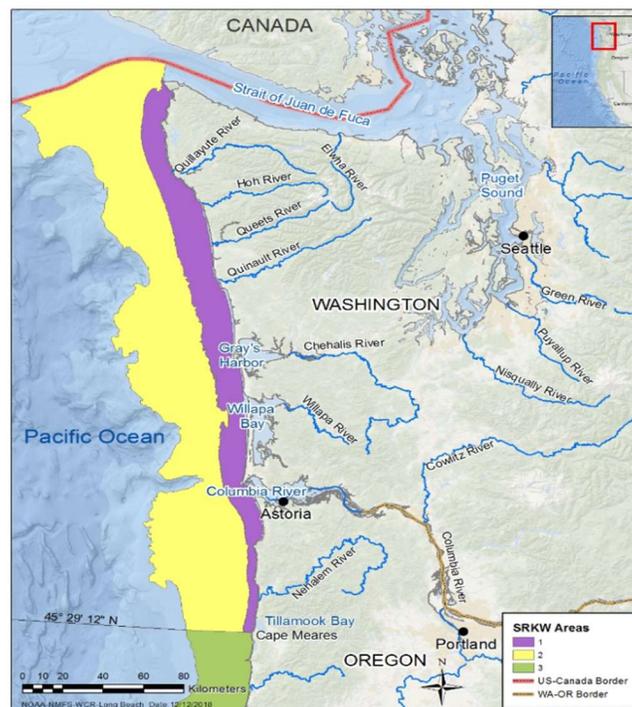


Figure 1: Proposed critical habitat Areas 1 and 2 for Southern Resident orcas have been identified by NOAA as “high-use foraging areas” and include Grays Harbor, the mouth of the Chehalis River.<sup>32</sup>

<sup>28</sup>*Ibid*

<sup>29</sup>*Ibid*; Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N00070-17-MP-4C419. 8 January 2018. 33 p.

<sup>30</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>

<sup>31</sup> *Ibid*; NOAA Fisheries and Washington Department of Fish and Wildlife 2018. Southern Resident Killer Whale Priority Chinook Stocks Report.

<sup>32</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>



Figure 2: Satellite-tagging data from 2015 shows concentrated movement between Grays Harbor and the Columbia River, supporting the “high use foraging” determination of this area.<sup>33</sup>

Although the orcas continue to frequent coastal waters when these historic spring Chinook runs are returning, the decline of Chinook has had a significant impact on the Southern Residents. A lack of prey throughout their range is widely recognized as the primary limiting factor to their immediate survival and future recovery, with increased mortality and decreased fecundity shown to be correlated with coastwide indices of Chinook salmon abundance.<sup>34</sup> Salmon depletion has led to changes in their social structure, decrease in presence in their core summer feeding areas, an increase in stress hormones, and a miscarriage rate of almost 70%.<sup>35</sup> The small population size has led to loss of genetic diversity and potential inbreeding depression.<sup>36</sup> Photogrammetry studies show that the Southern Residents are experiencing a decline in body condition between October and May.<sup>37</sup> For their immediate survival and future recovery, the Southern Resident orcas need abundant, diverse, and accessible Chinook salmon prey throughout their range.<sup>38</sup>

A recent paper from Orca Behavior Institute using sighting data from Orca Network and experienced observers showed that decreased spring usage of the Salish Sea habitat (recognized as their core summer area) by Southern Residents correlates with declines in Chinook salmon from the Fraser River.<sup>39</sup> The summer of 2019 marked the first year on record that Southern Residents were not seen in the Salish Sea

<sup>33</sup>Map and tagging data from Northwest Fisheries Science Center satellite tagging blog, per <https://www.usa.gov/government-works>

<sup>34</sup>Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk. 2005. “Linking prey and population dynamics: Did food limitation cause recent declines of ‘resident’ killer whales (*Orcinus orca*) in British Columbia.” *Fisheries and Oceans*; Ford J.K.B et al. 2010. “Linking killer whale survival and prey abundance: food limitation in the oceans’ apex predator?” *Biology Letters*, 6:139–142; Ward E.J, E.E. Holmes, and K.C. Balcomb. 2009. “Quantifying the effects of prey abundance on killer whale reproduction.” *Journal of Applied Ecology*, 46: 632–640; National Marine Fisheries Service 2008. “Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*).”; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>.

<sup>35</sup>Data from the Center for Whale Research; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (*Orcinus orca*).

<sup>36</sup>Ford, M. et al. 2018. Inbreeding in an Endangered Killer Whale Population. *Animal Conservation*, 21(5):423-432. DOI: 10.1111/acv.12413

<sup>37</sup>Fearnbach, H. et al. 2018. Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales. *Endang. Species Res.* 35:175-180. <https://doi.org/10.3354/esr00883>

<sup>38</sup> Washington State Southern Resident Orca Task Force. 2019. Final Report and Recommendations. Available: Final Report and Recommendations:

[https://www.governor.wa.gov/sites/default/files/OrcaTaskForce\\_FinalReportandRecommendations\\_11.07.19.pdf](https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf)

<sup>39</sup>Shields, M.W. et al. 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey. *Pacific Conservation Biology*, 24(2):189-193 <https://doi.org/10.1071/PC17041>

during the month of June, and in 2020 there was not an inland sighting throughout the month of May. Their use of this core critical habitat has been decreasing for several years, and observations from the Center for Whale Research and Canada's Department of Fisheries and Oceans has shown them to be foraging off the coast during the summer months.<sup>40</sup> This change in habitat use shows that Southern Resident orcas may adapt their foraging patterns when food becomes scarce, spending more time in the coastal portion of their established home range, further underscoring the importance of salmon recovery throughout their habitat. With Fraser River salmon runs continuing to decline, the coastal sources of salmon runs will likely become more important to the immediate survival and eventual recovery of the Southern Resident community.

The DEIS underestimates the potential effect of further declines of prey availability to the orcas. Salmon from all rivers within the orcas' range are not available to the orcas on a year-round basis, but instead are critical to the orcas' survival during specific seasons. The previously-mentioned NOAA proposed rule to revise the Southern Residents' critical habitat designation notes that the availability of key prey stocks is essential for the orcas' survival.<sup>41</sup> The spatiotemporal distribution of Chinook runs within the orcas' range means that different runs are more available, and therefore more important, to the Southern Residents at different times of the year. Chehalis Basin Chinook provide an important source of food and nutrition during the late winter and early spring. Current conditions in river and marine ecosystems are not adequate to support salmon quality and quantity sufficient for Southern Resident orcas, and projects that would further reduce salmon abundance pose significant additional risk, especially in a season and portion of their range that the orcas are more likely to be in poor body condition and nutritionally-stressed. The Proposed Project would not only directly impact the orcas by reducing the quantity of prey available, it would also impact the quality of their coastal habitat.

#### **Ecosystem-focused actions should be prioritized in place of the Proposed Project**

In place of the Proposed Project, we support a comprehensive, proactive plan that restores and maintains the ecological function and integrity of the Basin - providing natural flood control solutions while supporting salmon, Southern Resident orcas, and the health of the watershed. We urge the Corps' to adopt the No Action Alternative, and we support Washington State's prioritization of these and other ecosystem-focused actions together with the consultation and advice of tribal co-managers.

The Proposed Project offers minimal protection to impacted communities along with "**high adverse impacts**" and a significant cost to Washington State - estimated at \$628 million to \$1 billion. The mitigation measures required to offset the Proposed Project's severe impacts will require additional funding. Flooding is a natural process in the Chehalis River Basin and it plays an important ecological role in the watershed. Habitat destruction from logging and development have likely exacerbated the impacts of flooding in more recent times, particularly during the 1996 and 2007 floods.<sup>42</sup>

Opposition to the Proposed Project is growing, as organizations and agencies are encouraging different alternatives. At its May 20th meeting, the Chehalis Basin Board voted to explore other options for flood reduction and mitigation.<sup>43</sup> On July 22nd, Washington's Governor Inslee sent letters to the Chehalis Basin Board and Washington Departments of Ecology and Fish and Wildlife, directing them to work with local

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<sup>40</sup>Center for Whale Research Encounters. Available: <https://whaleresearch.wixsite.com/2019encounters>; Christopher Dunagan, Puget Sound Blogs "Three more orca deaths take census count down to 73 Southern Residents";

<sup>41</sup>Proposed Rulemaking To Revise Critical Habitat for the Southern Resident Killer Whale Distinct Population Segment, 84 FR 49214.

<sup>42</sup>"Did Development, Logging Set the Stage for Disaster?", Seattle Times, December 9, 2007

<sup>43</sup>Dodgson, C. "Office Of The Chehalis Basin Board to Look at Flood Reduction Options Other Than Dam" *The Daily Chronicle*, May 8, 2020. [http://www.chronline.com/news/office-of-the-chehalis-basin-board-to-look-at-flood-reduction-options-other-than-dam/article\\_b63ce07a-9148-11ea-984d-338187b4f242.html](http://www.chronline.com/news/office-of-the-chehalis-basin-board-to-look-at-flood-reduction-options-other-than-dam/article_b63ce07a-9148-11ea-984d-338187b4f242.html)

tribes to develop non-dam alternatives, and to pause the EIS process for the remainder of the year.<sup>44</sup> In a new flood policy, the Federal Emergency Management Agency has taken steps to encourage environmentally friendly features such as wetlands instead of building seawalls and levees.<sup>45</sup>

## Conclusion

The Southern Resident orcas need abundant and available salmon throughout their range if this unique, iconic community is to survive and thrive. Washington State has taken significant action in recent years to halt the decline of this population and ensure their recovery, and the Proposed Project is in direct opposition to that goal.

We strongly urge the Corps to oppose the construction of a flood retention facility and associated temporary reservoir near Pe Ell, Washington. We recommend the No Action Alternative, and support an ecosystem-based alternative that focuses on local actions, working with tribes and local private landowners to help implement the alternatives, and prioritizing actions that support ecosystem function of the Chehalis Basin. We need a plan that does not cause "high adverse impacts" to cultural resources, water quality, habitat and salmonids, but supports ecosystem recovery while protecting communities from the impacts of catastrophic floods.

Sincerely,

Howard Garrett  
President  
Orca Network

Sophia Ressler  
Washington Wildlife Advocate/Staff Attorney  
The Center for Biological Diversity

Susan Andersson  
Education Coordinator  
Wild Orca

Colleen Weiler  
Jessica Rekos Fellow for Orca Conservation  
Whale and Dolphin Conservation

Robb Krehbiel  
Northwest Representative  
Defenders of Wildlife

Dr. Erin Meyer  
Director of Conservation Programs and  
Partnerships  
Seattle Aquarium

R. Brent Lyles  
Executive Director  
Friends of the San Juans

Whitney Neugebauer  
Director  
Whale Scout

Chris Connolly  
Pacific Northwest Field Representative  
The Endangered Species Coalition

Alyssa Barton  
Policy Manager  
Puget Soundkeeper Alliance

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<sup>44</sup> <https://www.kuow.org/stories/inslee-puts-proposed-chehalis-river-dam-on-hold-calls-for-non-dam-options>

<sup>45</sup> <https://www.eenews.net/stories/1063716253>



CLEAN, FLOWING WATERS FOR WASHINGTON

The Center for  
**Environmental Law & Policy**

Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, Oregon 97219

RE: Comments on Chehalis River Basin Flood Damage Reduction Project Draft NEPA EIS  
Filed Electronically Only

Dear U.S. Army Corps of Engineers:

The Center for Environmental Law & Policy (CELP) appreciates this opportunity to provide comments on the Chehalis River Basin Flood Damage Reduction Project Draft Environmental Impact Statement (DEIS). The environmental review of this project is particularly important because the Chehalis is one of only four rivers in Washington with undammed flow greater than one hundred miles,<sup>1</sup> and with the exception of bull trout,<sup>2</sup> the Chehalis' salmonid stocks have not yet declined to the point of being listed under the Endangered Species Act.<sup>3</sup> This is a precious state of affairs.

Salmon are essential to our regional identity, to tribal lifeways, and to the livelihoods of native and non-native fishermen.<sup>4</sup> Building a dam would devastate these fish, already at severe risk from existing habitat degradation<sup>5</sup> that will be exacerbated by climate change, and would harm Washington's coastal fishing economies. Building the proposed dam would also cost hundreds of millions of dollars, not including mitigation costs, at a time when the state budget is under extraordinary pressure from the economic effects of COVID-19.<sup>6</sup>

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<sup>1</sup> TIM PALMER & ANN VILEISIS, GREAT RIVERS OF THE WEST: WASHINGTON, WESTERN RIVERS CONSERVANCY 16, <http://www.westernrivers.org/downloads/files/GROW%20FINAL/WA%20GROW.pdf>.

<sup>2</sup> NEPA DEIS at K-23. Coastal/Puget Sound bull trout are ESA-listed as threatened. 64 Federal Register 58909. Bull trout are documented to occur in lower Chehalis River and Grays Harbor tributaries and are presumed to occur in the lower mainstem Chehalis River, which is part of the species' designated critical habitat upstream to RM 43 (near Oakville). 75 Federal Register 63898.

<sup>3</sup> See their absence from pages NEPA DEIS at K-23-24.

<sup>4</sup> See, e.g., Langdon Cook, *Why Wild Salmon Remains King in the Pacific Northwest*, NAT. GEOGRAPHIC (MARCH 27, 2019), <https://www.nationalgeographic.com/travel/features/searching-for-wild-pacific-northwest-salmon-from-river-to-table/#close>.

<sup>5</sup> 2014 RECOMMENDATION REPORT, GOVERNOR'S CHEHALIS BASIN WORK GROUP (November 25, 2014).

<sup>6</sup> Joseph O'Sullivan, *As Coronavirus Freezes the Economy, Gov. Inslee Slashes Hundred of Millions of Dollars From Washington State Budget*, SEATTLE TIMES (April 3, 2020, 9:13PM), <https://www.seattletimes.com/seattle-news/politics/as-coronavirus-freezes-the-economy-inslee-slashes-hundreds-of-millions-of-dollars-in-state-spending/>.

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In 2007, devastating flooding led to the creation of the Office of the Chehalis River and planning for strategies to reduce flood damage.<sup>7</sup> Chehalis Basin residents need a flood strategy that reduces flood damage and flood risk for their families, homes, and livestock, but this proposal for a large dam on one fork of the Chehalis River would not provide the needed relief. Further, this proposal is for a large “expandable” dam,<sup>8</sup> which is an improper project segmentation under the National Environmental Policy Act (NEPA).

The proposed dam would partially reduce flood risk for only a minority of cities in the basin— i.e., it would not solve the problem. This incomplete fix would come at an unacceptable cost to salmon, treaty fishing rights, and Endangered Species Act-protected species including Southern Resident Killer Whales. Climate change is already harming fish by increasing river temperatures and degrading ocean conditions through acidification,<sup>9</sup> and this dam could consign Chehalis Basin residents to being Pacific Northwesterners without salmon. Amazingly, the DEIS’s salmon modeling fails to incorporate climate change, rendering its projections inaccurate.<sup>10</sup>

The NEPA DEIS suffers from a lack of forthrightness, a lack of detail, and an adherence to a preconceived notion that a dam would be preferable to all alternatives. A DEIS under the State Environmental Policy Act (“SEPA DEIS”) was previously published and contained substantial inadequacies.<sup>11</sup> The Corps’ NEPA DEIS now repeats mistakes from the SEPA DEIS while including even less detail and analysis. Overall, neither document shows that the dam proposal would meet the basin’s needs, and both documents show that the proposed dam would have unacceptable environmental impacts. These problems are discussed below.

## **I. Lack of a Complete Flood Management Solution**

The Chehalis Basin desperately needs flood management solutions that meet local needs in the entire basin rather than simply bulking up protection for interstate commerce on Interstate 5 and for some of the existing structures within the floodplain. The dam tries to meet this need sideways and backwards: it is aimed at protecting the people and livestock living in the basin, which is an essential goal, but it does so in a way that would create a cascade of new problems without solving the original one.

The proposed dam would not protect all basin communities from flood damage, and the flooding projected for the future would make this dam irrelevant. The NEPA DEIS fails to wrestle with climate modeling,<sup>12</sup> and fails to discuss the proposed dam’s impact on flooding. The SEPA DEIS projected that during a seven-year flood (under existing conditions), the proposed expandable dam “would reduce the downstream area affected by a major flood by 10% and a catastrophic

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<sup>7</sup> Hal Bernton & Ralph Thomas, *Extensive Flooding, 3 Confirmed Deaths, Hundreds of Rescues*, SEATTLE TIMES (Dec. 5, 2007, 12:00AM), <https://www.seattletimes.com/seattle-news/extensive-flooding-3-confirmed-deaths-hundreds-of-rescues/>.

<sup>8</sup> NEPA DEIS at 26.

<sup>9</sup> SEPA DEIS at E-57.

<sup>10</sup> NEPA DEIS at K-46.

<sup>11</sup> CELP Comments on SEPA DEIS, see Organizational Comments on SEPA DEIS,

[https://www.chehalisbasinstrategy.com/wp-content/uploads/2020/06/Organization\\_Comments\\_Combined.pdf](https://www.chehalisbasinstrategy.com/wp-content/uploads/2020/06/Organization_Comments_Combined.pdf).

<sup>12</sup> NEPA DEIS at 40.

flood by 11%.”<sup>13</sup> In a late-century catastrophic flood scenario, the dam would protect less than half of *existing* structures.<sup>14</sup> The city of Chehalis would still see more than 10 feet of inundation during a late century “catastrophic flood.”<sup>15</sup> By late in this century, climate change modeling predicts a 25% chance of a “major flood” in any given year.<sup>16</sup> The proposed dam’s failure to protect property and structures would surely lead to calls for a larger and taller dam, which the NEPA and SEPA DEISs quietly punt to a future environmental review.<sup>17</sup> Under NEPA, an EIS cannot falsely segment a project that is in fact one big project.<sup>18</sup>

Compounding this issue is the concern that the Applicant will save habitat mitigation for last and then run out of money, such that it never actually happens. Large dam projects routinely exceed their budgets by eye-popping magnitudes.<sup>19</sup> Here, spending hundreds of millions of dollars on a dam that would (hopefully) protect only 1,280 of 2,955 *currently existing* structures in a late century catastrophic flood scenario<sup>20</sup> is irresponsible by every measure: by the dam’s lethal impact on salmon in violation of law and treaty obligations, by the dam’s likelihood of encouraging further floodplain development that negates its effectiveness and harms fish habitat, and by the need for restraint in the state budget because of the economic effects of coronavirus. These problems argue against massive expenditures on a project of this magnitude that will produce such questionable results.

## II. Improper Scoping & Segmentation

The DEIS raises concerns that the U.S. Army Corps of Engineers (Army Corps or Corps) is improperly “segmenting” environmental review of a much larger project. Under NEPA and its implementing regulations, when evaluating a proposed project’s environmental impacts, an agency must take account of “connected,” “cumulative,” and “similar” actions whose impacts should be “discussed in the same impact statement” as the project under review.<sup>21</sup> An agency impermissibly segments environmental review when it divides connected, cumulative, or similar actions into separate projects “and thereby fails to address the true scope and impact of the activities that should be under consideration.”<sup>22</sup>

Actions are deemed “connected” with one another if they “(i) [a]utomatically trigger other actions which may require environmental impact statements,” “(ii) [c]annot or will not proceed

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<sup>13</sup> NEPA DEIS at 56.

<sup>14</sup> SEPA DEIS at S-9.

<sup>15</sup> SEPA DEIS at S-9. “In late-century, this type of flood has a 1 in 27 (4%) chance of occurring in any given year.” S-3.

<sup>16</sup> *Id.*

<sup>17</sup> NEPA DEIS at 3. (“The FRE facility would be built on a foundation that would allow for potential future expansion.”).

<sup>18</sup> *See, e.g., Thomas v. Peterson*, 753 F.2d 754, 755 (9th Cir. 1985) (NEPA requires USFS to consider proposed timber sale along with the road in its DEIS. Not doing so was improper segmentation because they are connected actions. The road had no independent utility); *see infra* Section II.

<sup>19</sup> *See, e.g., Atif Ansar et al., Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development*, 69 ENERGY POL’Y 43 (2014).

<sup>20</sup> SEPA DEIS at S-9

<sup>21</sup> 40 C.F.R. § 1508.25(a).

<sup>22</sup> *Delaware Riverkeeper Network v. F.E.R.C.*, 753 F.3d 1304, 1313 (D.C. Cir. 2014) (holding that FERC impermissibly segmented NEPA review by failing to consider the cumulative impacts of four related natural gas pipeline upgrade projects).

unless other actions are taken previously or simultaneously,” or “(iii) [a]re interdependent parts of a larger action and depend on the larger action for their justification.”<sup>23</sup> Under the third basis for finding a connected action, the essential question is whether the segmented projects have independent utility.<sup>24</sup> If the projects have no independent utility, their environmental review cannot be segmented.<sup>25</sup> Projects have independent utility where “each project would have taken place in the other's absence.”<sup>26</sup>

Here, the DEIS states that the proposed dam is “expandable” because it “would be built so its foundation could support a larger structure” in the future, which “could increase temporary reservoir storage from 65,000 acre-feet to 130,000 acre-feet.”<sup>27</sup> This larger foundation clearly lacks “independent utility” unless the larger dam is actually built, and is functionally part of the larger dam project. If expansion were to be proposed in the future, it would go through a separate environmental and permitting process.<sup>28</sup> But rather than artificially disconnecting the expansion from the current project, the Army Corps needs to look at all reasonably foreseeable impacts now.<sup>29</sup>

Since the proposed dam would only incompletely protect Centralia and Chehalis rather than the whole basin,<sup>30</sup> it would increase the pressure for building an expanded dam later. When actions are connected—such as (1) building a dam that is specifically designed to be expandable and (2) later expanding that dam—the EIS process must encompass all such connected actions to effectively study the environmental impacts.<sup>31</sup> These are not two independent actions; they are one extended building project. By failing to consider the actual scope of the project, the NEPA DEIS improperly segments the environmental review process in violation of NEPA.

The cost of building an expandable dam is \$60 to \$100 million more than building a dam that is the same size and does the same job but that would not be expandable.<sup>32</sup> This cost cannot be justified without first determining that an expanded dam is necessary and appropriate. This would be a huge and irreversible commitment of resources now to support expansion later, and suggests a high likelihood that the expanded dam would ultimately be built. Otherwise, the high cost is an enormous investment in a future that is totally un-analyzed in the DEIS. Both phases of dam construction would contribute to the high environmental and economic impacts of the project, and both must be the subject of a unified review process.<sup>33</sup>

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<sup>23</sup> 40 C.F.R. § 1508.25(a)(1).

<sup>24</sup> *Twp. of Bordentown, New Jersey v. Fed. Energy Regulatory Comm'n*, 903 F.3d 234, 249 (3d Cir. 2018).

<sup>25</sup> See *Delaware Riverkeeper Network*, 753 F.3d at 1313.

<sup>26</sup> *Webster v. U.S. Dep't of Agric.*, 685 F.3d 411, 426 (4th Cir. 2012) (collecting cases).

<sup>27</sup> NEPA DEIS at D-25.

<sup>28</sup> *Id.*

<sup>29</sup> *Delaware Riverkeeper Network*, 753 F.3d at 1313.

<sup>30</sup> SEPA DEIS at S-9.

<sup>31</sup> 40 CFR § 1508.25(a)(1).

<sup>32</sup> *Summary Comparison of FRO, FRFA, and FRE Alternatives*, CHEHALIS RIVER BASIN FLOOD CONTROL COMBINED DAM AND FISH PASSAGE SUPPLEMENTAL DESIGN REPORT, FRE DAM ALTERNATIVE (Sept. 2018), Table 11-1 at 41-42, <https://www.chehalisbasinstrategy.com/wp-content/uploads/2018/09/FRE-Alternative-Supplemental-Report-2018-09-27-reduced.pdf>.

<sup>33</sup> *Delaware Riverkeeper*, 753 F.3d at 1313.

The DEIS completely fails to explain why this expandable dam is required. If it is not justified, why spend millions more? But if it is justified, and the Applicant actually intends to enlarge the dam, then why are the true environmental impacts not analyzed now? Falsely articulating the expansion as a separate project is a straightforward NEPA violation, because it has no independent utility and would not take place in the absence of first dam's expandable foundation.<sup>34</sup> The proposed expandable dam is a textbook case of an unlawfully segmented action, and the DEIS should analyze all connected actions now.

### III. Speculative Mitigation

As part of considering reasonable alternatives in an EIS, NEPA requires agencies to consider mitigation measures not in the proposed action.<sup>35</sup> Under NEPA, a substantive mitigation plan need not be adopted for an EIS, but mitigation must be discussed in sufficient detail to ensure that environmental consequences have been "fairly evaluated."<sup>36</sup> Courts have emphasized "the requirement that mitigation measures be supported by substantial evidence."<sup>37</sup> Some "quantified or detailed information is required" so that courts and the public can be assured that the agency took the "hard look" that NEPA requires.<sup>38</sup>

Here, unless mitigation is successful, the DEIS concludes that significant impacts are unavoidable in nearly every major category, including impacts on habitat, salmonids, other fish, shellfish, and Southern Resident Killer Whales. Given that potential mitigation actions are so important to predicting the actual environmental impacts of the project, the final DEIS should go into much greater detail about possible actions and their likelihood of success.

The NEPA DEIS does not analyze any mitigation measures for the impacts of climate change. Even without the proposed project, climate change will cause a net loss of ecological function in the Chehalis Basin.<sup>39</sup> Climate change is emphatically not an argument for throwing up ones' hands and giving up all hope of improving ecological function; legal obligations to tribes and to the citizens of Washington state forgo that faulty conclusion.<sup>40</sup> Rather, the final NEPA EIS should directly address the options for, and feasibility of, creating improvements in ecological function that are greater than the losses predicted from the project.

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<sup>34</sup> See, e.g., *Thomas v. Peterson*, 753 F.2d 754, 755 (9th Cir. 1985) (NEPA requires USFS to consider proposed timber sale along with the road in its DEIS. Not doing so was improper segmentation because they are connected actions. The road had no independent utility).

<sup>35</sup> 40 CFR § 1508.25(b)(3); 40 CFR § 1502.14.

<sup>36</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 333, 109 S. Ct. 1835, 1837, 104 L. Ed. 2d 351 (1989) (When conducting an EIS, NEPA includes the "requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated").

<sup>37</sup> *Nat'l Audubon Soc. v. Hoffman*, 132 F.3d 7, 17 (2d Cir. 1997) (holding that USFS violated NEPA when deciding to extend road conduct logging by failing to adequately consider all relevant factors, and USFS's determination that preparation of environmental impact statement (EIS) was unnecessary was arbitrary and capricious).

<sup>38</sup> *Neighbors of Cuddy Mountain v. U.S. Forest Service.*, 137 F.3d 1372, 1379 (9th Cir. 1998) (holding that USFS violated NEPA when it approved a timber sale because its description of mitigating measures it would impose to offset damage that proposed timber sale would cause to redband trout habitat was insufficient).

<sup>39</sup> SEPA DEIS at S-1.

<sup>40</sup> See, e.g., *U. S. v. Washington*, 853 F.3d 946 (9th Cir. 2017), *aff'd by an equally divided court* 138 S. Ct. 1832 (2018).

In the environmental review process for the proposed expandable dam, the SEPA DEIS kicked the can down the road to federal agencies to consider climate change mitigation rather than rather than explain how the adverse effects of the dam would be mitigated (and what assurances exist that the mitigation would be maintained in perpetuity).<sup>41</sup> But here, the responsible Federal agency (the Corps) makes even *less* mention of climate change and provides no suggestions at all for mitigating its effects. In the main DEIS, the Corps mentions climate change only twice in a 302-page document, when setting forth the comments received during the scoping process.<sup>42</sup> In the Aquatic Species and Habitats Appendix, the NEPA DEIS discusses climate change only to explain that “climate change modeling was not included in this [species impact] model.”<sup>43</sup> The Corps’ species impact modeling is therefore useless. It acknowledges that including climate change predictions would “dramatically alter” species responses and conclusions about the effects of the proposed project on salmonids.<sup>44</sup>

This is no way to plan for mitigation. Closing one’s eyes and assuming that future conditions will mirror the present even in the face of climate change will result in foreseeable harm to legally protected species. Failing to include climate change in the NEPA analysis means the DEIS cannot make accurate projections of the dam’s impacts, let alone determine how to mitigate them. The Corps must address, rather than simply list, the concerns elicited in the scoping process.

The NEPA DEIS also fails to thoroughly discuss impacts on recreation and possible mitigation. It mentions hikers and kayakers,<sup>45</sup> but does not fully analyze mitigation measures for their experiences. When building water resource development projects, distinct but related to the flood management project at hand, the Army Corps’ official federal policy is to “manage the natural, cultural and developed resources of each project in the public interest, providing the public with safe and healthful recreational opportunities while protecting and enhancing these resources.”<sup>46</sup> The NEPA DEIS should more thoroughly analyze the proposed dam’s impacts on recreation and possible mitigation measures.

#### **IV. Unaddressed Effects on Salmonids**

The upper Chehalis, where the dam is proposed, has the best spawning and rearing habitat for salmon in the whole basin.<sup>47</sup> Chinook salmon, chum salmon, coho salmon, steelhead, and coastal cutthroat are all widespread in the Chehalis River and associated off-channel and floodplain habitats.<sup>48</sup> Throughout all life stages, they require cool, clear water. To date, the Chehalis has continued to support fish populations, although the numbers have decreased like in other rivers,

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<sup>41</sup> SEPA DEIS at E-83.

<sup>42</sup> NEPA DEIS at 8, ES-3.

<sup>43</sup> NEPA DEIS at K-46.

<sup>44</sup> NEPA DEIS at 46.

<sup>45</sup> *See, e.g.*, NEPA DEIS at 230.

<sup>46</sup> 36 C.F.R. § 327.1(a).

<sup>47</sup> Lea Ronne, Nicholas Vanbuskirk, Curt Holt, & Mara Zimmerman, SPAWNER ABUNDANCE AND DISTRIBUTION OF SALMON AND STEELHEAD IN THE UPPER CHEHALIS RIVER, 2017-2018, WASHINGTON DEPARTMENT OF FISH & WILDLIFE (2018), <https://wdfw.wa.gov/sites/default/files/publications/02034/wdfw02034.pdf> (“The highest density of fall Chinook occurred between the proposed dam site (RM 108.2) and Elk Creek (RM 100.2)”).

<sup>48</sup> SEPA DEIS at E-26.

and habitat restoration is essential. Climate change poses a threat to these fish, and a dam's negative impact would compound these effects.

According to a 2016 report to the Quinault Indian Nation by Larry Lestelle, a Poulsbo-based fisheries biologist who has studied the Chehalis Basin for 45 years, the basin historically saw an average of 778,000 steelhead, coho and Chinook salmon swimming upstream a year.<sup>49</sup> That number fell to 111,800 in 2003 and to 75,500 in 2016.<sup>50</sup> Without restoration, Lestelle estimates these numbers could drop to 40,300, threatening local tribes and fisheries.<sup>51</sup> Of those, spring Chinook are the most threatened: In 2016 only 1,500 returned.<sup>52</sup> Without aid, that number could fall to 200.<sup>53</sup>

In annual surveys, nearly every reach of the upper mainstem of the Chehalis River and every accessible tributary upstream of Crim Creek are consistently occupied by juvenile salmonids.<sup>54</sup> Crim Creek enters the Chehalis River just upstream of the proposed dam.<sup>55</sup> It would be shorn of its riparian buffer and submerged by the proposed reservoir during high flow events.<sup>56</sup> Chinook and steelhead in particular move up and downstream in reaches that would be affected by the proposed dam, to forage and maintain optimal body temperature.<sup>57</sup> Currently, salmon and steelhead spawn less than half a river-mile upstream of the proposed dam site, an area that would be inundated when the dam is operational, and less than a mile and a half downstream of the site, where flow would irreparably altered by the dam.<sup>58</sup>

The NEPA DEIS disingenuously pretends that the No Action Alternative would be more harmful to fish than building the dam.<sup>59</sup> It appears to be a quiet application of climate change modeling to the No Action Alternative, while omitting climate change projections from the analysis of the environmental impacts of the proposed dam.<sup>60</sup> Climate change is affecting the Chehalis Basin and the dam would do nothing to protect against those effects. The NEPA DEIS's odd projections for the No Action Alternative may also be due to a projection that low water quality will continue under the No Action Alternative, but not under the proposed dam scenario.<sup>61</sup> NEPA requires agencies to compare the proposed project to environmental baselines.<sup>62</sup> If the baseline is already bad, the Army Corps cannot pretend that the proposed dam would improve the situation when

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<sup>49</sup> John Stang, *Will Flood Protection Set Back Salmon Restoration in the Chehalis River Basin?*, CROSSCUT (Feb. 12, 2020), <https://crosscut.com/2020/02/will-flood-protections-set-back-salmon-restoration-chehalis-river-basin>.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> SEPA DEIS at E-29.

<sup>55</sup> NEPA DEIS at 68.

<sup>56</sup> This would have disastrous effects. For example, “[i]n the summer, the temperature of the Chehalis River and streams in the temporary reservoir area would increase up to 5.4°F and up to 9°F in Crim Creek. This is mainly from the removal of trees for construction and operation of the FRE facility which would reduce shade and cover in upland and riparian zones.” SEPA DEIS at 39.

<sup>57</sup> *Id.*

<sup>58</sup> SEPA DEIS at E-102 (citing Ashcroft et al. 2017).

<sup>59</sup> NEPA DEIS at ES-10–11.

<sup>60</sup> DEPA DEIS at K-ES-7.

<sup>61</sup> NEPA DEIS at K-53.

<sup>62</sup> See 40 C.F.R. § 1508.25.

nothing shows this would be the case. For the No Action Alternative, failing to improve the status quo is not equivalent to an adverse effect.

Further, the NEPA DEIS guarantees an inaccurate assessment of the proposed dam's environmental impacts because it makes no attempt to include climate change in modelling any alternative. For resource areas including fish, "[f]uture climate conditions were not modeled in this EIS."<sup>63</sup> This is a stunning omission, since an understanding of climate change's probable impacts on salmonids in Washington state has existed for years.<sup>64</sup> The NEPA DEIS acknowledges that "it is generally accepted that precipitation patterns and air temperatures in the Chehalis Basin will differ in the future compared to the data used in modeling."<sup>65</sup> This means that baseline projections and modelled impacts from the proposed dam are already known to be incorrect. The final NEPA EIS must make a thoughtful attempt to include known climate impacts in its models and projections.

Under the Clean Water Act, Total Maximum Daily Load (TMDL)<sup>66</sup> levels have been set for temperature and dissolved oxygen in the Chehalis River, established by the Washington State Department of Ecology and approved by the U.S. Environmental Protection Agency.<sup>67</sup> These levels help to protect salmonids. The DEIS actually shows that the proposed project would contribute to further violations of these standards, and provides no pathway to mitigation of these effects. The final NEPA EIS should address TMDLs.

Having large woody debris in the river and associated streams "helps slow water velocities and contributes to the development of pools that provide cooler stream temperature, decreases fine sediment transport, provides refuge for juvenile fishes from predation, and enables successful feeding."<sup>68</sup> To prepare for the reservoir, the Applicant would remove large woody debris from the river channel, which would have compounding and multivariant effects on salmon and other fish.<sup>69</sup> Removing trees from the temporary reservoir area would also reduce or eliminate future deposition of woody debris in the river and contributing streams.<sup>70</sup> Reduced wood input would create less robust river channeling and prevent pools and eddies from forming.<sup>71</sup> Yet pools and eddies from river channeling are places for juvenile salmon to survive away from faster currents, and places for salmon to spawn where their redds won't be swept away.<sup>72</sup> The NEPA DEIS fails to meaningfully acknowledge these cascading effects, and is materially worse than the SEPA DEIS in

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<sup>63</sup> DEPA DEIS at K-ES-7.

<sup>64</sup> See, e.g., N.J. Mantua, I. Tohver, & A.F. Hamlet. Chapter 6 in *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington (2009).

<sup>65</sup> DEPA DEIS at K-ES-7.

<sup>66</sup> See 40 C.F.R. § 130.7.

<sup>67</sup> See, e.g., Reporting Watershed Improvement, Based on Statistical Evidence of Watershed-wide Improvement (Option 2a), Chehalis River Basin, Washington (May 2011), <https://www.epa.gov/sites/production/files/2016-03/documents/r10chehalis.pdf>.

<sup>68</sup> SEPA DEIS at E-103 (citing Wohl et al. 2015; Poff et al. 1997; Wald 2009).

<sup>69</sup> NEPA DEIS at 89.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

this respect. Neither DEIS considers the far-reaching downstream effects on salmonid survival of the loss of woody debris.<sup>73</sup>

By requiring the removal of vegetation from the upstream temporary reservoir inundation area, the dam would have a drastic impact on water temperatures in that area and the reaches directly downstream due to loss of shading.<sup>74</sup> Large trees greater than 6 inches in diameter and non-flood tolerant trees would be removed in the reservoir and construction area, “affecting over 600 acres of upland, riparian, and wetland areas.”<sup>75</sup> This means “[d]aily maximum [upstream] water temperatures would increase 0.5°C to 3°C, depending on time of year, from lack of shading, with the greatest impact in June through mid-September.”<sup>76</sup> Downstream from the proposed dam site in the middle and lower mainstem Chehalis River, the “function of the Chehalis River as a migratory corridor could be impaired by 2°C to 3°C increases in daily maximum summer water temperature.”<sup>77</sup> Summertime Chehalis River temperatures *already* exceed water quality criteria for core summer salmonid habitat and spawning, rearing, and migration.<sup>78</sup> The increase in temperature and the associated decrease in dissolved oxygen caused by the proposed project would exacerbate these violations of the water quality criteria. These impacts would kill salmon, and the NEPA DEIS does not discuss any mitigation for these lethal temperature effects.

Losing salmon does not just mean losing the identity of the region and its economic health; it also means the loss of that population’s unique genetic makeup. The spring- and fall-run Chinook that spawn in the upper Chehalis Basin are a significant source of genetic diversity for the population.<sup>79</sup> The upper basin of the Chehalis is warmer and is geographically and hydrologically distinct from other parts of the basin, and scientists have also observed genetic differences between Coho salmon from the upper basin and from other parts of the Chehalis Basin.<sup>80</sup> These concerns cannot be ignored.

Finally, while CELP does not speak for any Native American tribe, we remind the Corps that it has the obligation to honor tribal rights reserved in treaties and executive orders. The DEIS acknowledges that the Corps is bound by the federal government’s trust responsibility<sup>81</sup> to tribes.<sup>82</sup> But by demonstrating the high degree that fish would be harmed by the proposed project, the DEIS fails to respect the treaty right to take fish<sup>83</sup> and the accompanying right to fish habitat.<sup>84</sup> When the U.S. government fails to respect the lawful rights of tribes, it degrades

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<sup>73</sup> See e.g., Trevor A. Jones, Lori D. Daniels, *Dynamics of Large Woody Debris in Small Streams Disturbed by the 2001 Dogrib Fire in the Alberta Foothills*, 256 FOREST ECOLOGY AND MANAGEMENT 1751 (“For headwater streams in environments susceptible to floods and erosion we recommend that buffer zones comprised of snags to be established after fires . . . to ensure a supply of [large woody debris] into streams for years to decades after a stand-replacing fire” or other disturbance.”).

<sup>74</sup> NEPA DEIS at 69.

<sup>75</sup> SEPA DEIS at E-102

<sup>76</sup> SEPA DEIS at E-103.

<sup>77</sup> SEPA DEIS at E-104.

<sup>78</sup> NEPA DEIS at 48.

<sup>79</sup> NEPA DEIS at K-29–K-30.

<sup>80</sup> NEPA DEIS at K-34.

<sup>81</sup> See *Cobell v. Norton*, 240 F.3d 1081 (D.C. Cir. 2001).

<sup>82</sup> NEPA DEIS at 274.

<sup>83</sup> *U. S. v. Washington*, 384 F. Supp. 312 (W.D. Wash. 1974), *aff’d*, 520 F.2d 676 (9th Cir. 1975).

<sup>84</sup> *U. S. v. Washington*, 853 F.3d 946 (9th Cir. 2017), *aff’d by an equally divided court* 138 S. Ct. 1832 (2018).

resources that are used and shared by tribal and non-tribal people. The DEIS does not sufficiently recognize that spring and fall run Chinook salmon, coho salmon, steelhead, Pacific lamprey, and many other fish and shellfish are critical to the physical, cultural, and spiritual wellbeing of tribal nations. Although the Corps acknowledges that access to fish for harvest is a right reserved in tribal treaties,<sup>85</sup> it does not look at the proposed dam's potential impact on these rights. Instead, it merely mentions how an injunction to remove culverts harmful to treaty-protected fish impacts modeling.<sup>86</sup> As it continues its environmental review of the proposed dam, the US Army Corps must respect its government-to-government relationship with the affected tribes.<sup>87</sup>

### *Impacts of Dam Construction on Fish Populations*

For a period of five years, construction of the dam would impact fish populations, including killing fish, for a period of at least five years.<sup>88</sup> This would be catastrophic, because the loss of four or five year-classes in a row could end salmon runs in the Chehalis Basin. The DEIS openly acknowledges that construction of the expandable dam could completely eliminate spring-run Chinook salmon above the dam.<sup>89</sup> This alone is an unacceptable impact. Besides the temperature increases due to vegetation removal (which would begin during construction and continue to harm salmonids during operation),<sup>90</sup> fish would also be harmed by elevated turbidity due to earthwork in the river channel, sound pressure waves from rock blasting (which cannot be measured, only observed),<sup>91</sup> vibrations from roller-compacting concrete, and decreased or eliminated fish passage due to the large unlighted tunnel into which it is uncertain they would venture.<sup>92</sup> The diversion is expressly not designed to meet NMFS requirements for upstream passage of juvenile salmonids.<sup>93</sup>

During construction, migrating fish would move up the river with the assistance of a temporary trap and transport facility, and down the river through a diversion tunnel.<sup>94</sup> During trap and transport, adult salmonids would be prioritized.<sup>95</sup> Overall, the expected survival rate for fish during construction is exceptionally poor. During construction, only 45% of adult steelhead and 41% of adult Coho salmon travelling upstream are expected to survive.<sup>96</sup> It bears repeating that these numbers refer to survival, not just to fish passage.<sup>97</sup>

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<sup>85</sup> NEPA DEIS at K-6.

<sup>86</sup> NEPA DEIS EDT Modeling Report at 17.

<sup>87</sup> See, e.g., QUINULT INDIAN NATION COMMENTS, DRAFT ENVIRONMENTAL IMPACT STATEMENT, PROPOSED CHEHALIS RIVER BASIN FLOOD DAMAGE REDUCTION PROJECT UNDER STATE ENVIRONMENTAL POLICY ACT (May 11, 2020), [https://static1.squarespace.com/static/5ea74f37fc31534cf56f0946/t/5eb9c991e85fc52b2fef48b3/1589234071989/FINAL+QIN+Chehalis+DAM+DEIS+comment+5\\_11\\_2020.pdf](https://static1.squarespace.com/static/5ea74f37fc31534cf56f0946/t/5eb9c991e85fc52b2fef48b3/1589234071989/FINAL+QIN+Chehalis+DAM+DEIS+comment+5_11_2020.pdf).

<sup>88</sup> NEPA DEIS at K-47. This 5-year modeling assumes that construction would not last longer than projected, which it often does for large dam projects.

<sup>89</sup> NEPA DEIS at K-73.

<sup>90</sup> NEPA DEIS at K-ES-2.

<sup>91</sup> NEPA DEIS at K-47; SEPA DEIS at E-63.

<sup>92</sup> SEPA DEIS at E-100.

<sup>93</sup> NEPA DEIS at K-50.

<sup>94</sup> NEPA DEIS at K-49.

<sup>95</sup> NEPA DEIS at K-50.

<sup>96</sup> NEPA DEIS at K-82, Table 6.4-6.

<sup>97</sup> *Id.*

### *Fish Passage during Dam Operation is Speculative*

Proposed fish passage for when the dam would be in place is inadequately described and its effectiveness is uncertain. During normal flows, fish are supposed to migrate up and down through five tunnels at the base of the dam,<sup>98</sup> each 310 feet long and unlit.<sup>99</sup> During flood conditions when the outlets are closed, fish would migrate with the help of a permanent “collection, handling, transport, and release (CHTR) facility.”<sup>100</sup> The DEIS does not fully explain how this facility would operate.<sup>101</sup>

The Preferred Alternative’s projections for fish survival are based on the assumption that fish would readily migrate upstream through the “310-foot-long, unlit tunnels in the base” of the proposed dam during normal flow.<sup>102</sup> The NEPA DEIS asserts that “[u]nder normal conditions, when the gates are open, fish would be able to move upstream and downstream through the five gated outlets.”<sup>103</sup> The Army Corps does not describe any similar system elsewhere to demonstrate that this assumption will hold, and it does not offer any Plan B.

The Preferred Alternative’s lack of downstream passage for juvenile salmonids during flood retention is of particular concern. For both spring run (discussed further below with respect to Southern Resident Killer Whales) and fall run Chinook salmon, zero percent of juveniles travelling downstream are expected to survive during flood retention.<sup>104</sup> The analysis performed for the SEPA DEIS showed that the same was true for Coho, steelhead, coastal cutthroat, pacific lamprey, and western brook lamprey; this conclusion should have been addressed in the NEPA document.<sup>105</sup>

Upstream juvenile passage would also be greatly impacted. Survival rates for juvenile Chinook travelling upstream are projected to be as low as 64% during normal (i.e., non-flood retention) operations and 50% during flood retention operations. This is unacceptably low, especially when these species are already under stress from climate change. During flood retention, juvenile salmon travelling upstream (spring and fall run Chinook and Coho) would have only 64% survival.<sup>106</sup> Adult salmon travelling downstream are not expected to use passage in that direction, or no data is available.<sup>107</sup> The Corps should analyze these species more closely, and make more careful projections for flood operations.

Four years ago, the Center for Environmental Law & Policy raised these same concerns in comments on the Draft Programmatic DEIS for the Chehalis Basin. We were concerned about the

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<sup>98</sup> NEPA DEIS at 26.

<sup>99</sup> SEPA DEIS at 20.

<sup>100</sup> NEPA DEIS at K-47.

<sup>101</sup> NEPA DEIS at 32.

<sup>102</sup> SEPA DEIS at E-81 (“The impact assessment included the following assumptions during non-flood conditions: Fish would enter and pass through the 310-foot-long, unlit tunnels in the base of the FRE facility.”).

<sup>103</sup> NEPA DEIS at 26.

<sup>104</sup> *Id.*

<sup>105</sup> SEPA DEIS App. E, Table E-9.

<sup>106</sup> NEPA DEIS at K-128, Table 6.4-15.

<sup>107</sup> *Id.*

adequacy of fish passage, and the lack of detail in the proposed mitigation measures. We wrote: “Any fish passage method ultimately selected should operate through permanent features of the dam (i.e., fish ladders rather than trap and haul facilities), so that continued human intervention is not needed to provide for fish survival.” Today, the applicant and the state continue to rely on human intervention rather than structural adaptations for ensure fish passage past the proposed dam. Among other things, this requires adequate continued funding, which recent experience shows us is never assured. It bears repeating that this also assumes fish passage would actually be built and operational on schedule, which experience shows is unlikely.<sup>108</sup>

## V. Unaddressed Effects on Other Fish

If the proposed expandable dam were to be built, several other fish species would fall prey to all the same environmental stressors as the salmon discussed above. Many of these species are protected by the state Endangered Species Act, which sets out requirements for landowners to comply with conservation plans,<sup>109</sup> and others are protected by the federal Endangered Species Act. The right to take fish is also held by the Quinault Indian Nation, and impacts to these treaty-protected fish are insufficiently explored.

The NEPS DEIS does not sufficiently analyze lamprey. Western brook lamprey is listed by the state of Washington as a “Species of Greatest Conservation Need and Candidate for the state of Washington Priority Habitats and Species list.”<sup>110</sup> Likewise, “Pacific lamprey is included as a Species of Greatest Conservation Need in the Washington State Wildlife Action Plan and is a Species of Tribal Importance.”<sup>111</sup> Lamprey is important to tribes in the Pacific Northwest, and the NEPA DEIS contains insufficient information on the dam’s potential impact. Pacific lamprey are more thoroughly studied in the proposed project area, but the distributions of River lamprey and Western brook lamprey are less well-understood.<sup>112</sup>

The DEIS assumes that chum salmon need not be fully analyzed because they mostly occur downstream of the study area. Although chum salmon “spawn outside of the study area,” they “could be present in the lower portion of the Chehalis River 100-year floodplain study area.”<sup>113</sup> This lack of attention to chum salmon is concerning for the second-most abundant anadromous salmonid present in the basin.<sup>114</sup> Chum salmon, along with steelhead and coho, also provide an important supplement to Southern Resident Killer Whales’ diet of Chinook salmon.<sup>115</sup> Just because they do not spawn in the study area does not mean that chum will not be affected by a dam. Notes at the end of the fish appendix indicate that chum were not included in the EDT/

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<sup>108</sup> “A 2014 study of 245 dams in 65 countries, however, shows an average cost overrun of 96% for dam building.” *FAQ, CHEHALIS RIVER ALLIANCE*, <https://www.chehalisriveralliance.org/faq> (citing Atif Ansar et al., *Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development*, 69 ENERGY POL’Y 43 (2014)). The cited study examined hydropower rather than flood control dams, which unlike the proposed dam at issue have some prayer of providing a return on investment.

<sup>109</sup> Ch. 220-610 WAC.

<sup>110</sup> SEPA DEIS at E-44.

<sup>111</sup> SEPA DEIS at E-43.

<sup>112</sup> NEPA DEIS at K-38.

<sup>113</sup> NEPA DEIS at K-36.

<sup>114</sup> SEPA DEIS at E-45.

<sup>115</sup> NEPA DEIS at K-44.

NOAA LCM models because “#s were large and skewed results.”<sup>116</sup> This analysis is entirely insufficient.

The Olympic mudminnow, a state listed sensitive species, is also documented in the proposed inundation area.<sup>117</sup> It is unique to the coastal lowlands of western Washington, occurring “nowhere else in the world,” and the majority of its population is in the Chehalis Basin.<sup>118</sup> These facts have enormous implications for what a dam would mean for this species. Olympic mudminnows are heavily dependent on temporarily flooded wetland habitats and are sensitive to changes in hydrology. They require “a muddy bottom, little or no water flow, and abundant aquatic vegetation.”<sup>119</sup> Wetland loss in western Washington has been the primary cause of their decline thus far.<sup>120</sup>

Even before this NEPA DEIS, negative impacts were difficult to measure and prevent because shallow mudminnow habitats are often mis-mapped and mis-identified, and information is not always transmitted between managing agencies.<sup>121</sup> In 2009, a Glasgow and Hallock study explained: “Many mudminnow habitats are mis-mapped or misclassified as ‘non-fish bearing’ waters on the Washington State Department of Natural Resources regulatory water type maps, which can substantially reduce mudminnow habitat protection.”<sup>122</sup> Given that a comprehensive survey of streams and wetlands of the upper Chehalis has not been completed, it is likely that mudminnow habitat is still mis-mapped and mis-classified. The DEIS should have better information on habitat used by such a sensitive species, especially in light of the proposed dam’s hydrologic impacts, and the extent of wetland habitat the proposed dam would eradicate. NEPA, as an information forcing law, requires the Army Corps to do the research to answer questions like these.<sup>123</sup>

Coastal and Puget Sound bull trout are listed as threatened under the Endangered Species Act (ESA).<sup>124</sup> The mainstem Chehalis River from approximately river mile (RM) 16.5 to RM 45 is federally designated critical habitat for bull trout, as well as other adjacent river systems.<sup>125</sup> In rivers, changing upstream flow changes downstream flow, not to mentioned changes in temperature and dissolved oxygen. The proposed dam would affect this designated critical habitat, but the DEIS focuses on the fact that bull trout are not found precisely in the study area rather than studying how the proposed dam would impact downstream critical habitat.<sup>126</sup> The DEIS thus fails to actually evaluate the impacts of the Preferred Alternative on this species.

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<sup>116</sup> NEPA DEIS at D-1, Appendix K.

<sup>117</sup> NEPA DEIS at K-25.

<sup>118</sup> SEPA DEIS at E-48.

<sup>119</sup> THREATENED AND ENDANGERED WILDLIFE IN WASHINGTON: 2012 ANNUAL REPORT AT 157, <https://wdfw.wa.gov/sites/default/files/publications/01542/wdfw01542.pdf>.

<sup>120</sup> *Id.* at 158.

<sup>121</sup> *Id.* at 158.

<sup>122</sup> *Id.* at 158 (citing Glasgow & Hallock (2009)).

<sup>123</sup> See *Sierra Club v. United States*, 23 F. Supp. 2d 1132 (N.D. Cal. 1998) (circumstances changed after a flood, and NPS needed to revisit and reexamine an EIS for a Yosemite lodge).

<sup>124</sup> 64 Federal Register 58909. Under the ESA, ‘threatened species’ “means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” ESA § 3(20).

<sup>125</sup> NEPA DEIS at K-21.

<sup>126</sup> NEPA DEIS at K-23.

Likewise, the southern distinct population segment of Pacific eulachon is designated as threatened under the Endangered Species Act.<sup>127</sup> The Chehalis Basin is not included in their designated critical habitat because low numbers were found in Grays Harbor, but recent surveys suggest that eulachon exist higher in the Chehalis Basin.<sup>128</sup> The NEPA DEIS does not acknowledge this.<sup>129</sup> For policy makers to make informed decisions, this information should be included in the NEPA DEIS.

The southern distinct population segment of the green sturgeon is also listed as threatened under the Endangered Species Act.<sup>130</sup> Their nearest critical habitat to the Chehalis Basin is Willapa Bay and Grays Harbor, and the lower Columbia River from the mouth to river kilometer 74.<sup>131</sup> Green sturgeon are known to be in the Chehalis River, where suitable spawning habitat exists.<sup>132</sup> Grays Harbor has a recreational and commercial fishery for sturgeon,<sup>133</sup> and the NEPA DEIS should examine this economic impact.

The Chehalis River is also subject to increasing colonization by non-native fish.<sup>134</sup> Invasive bass, especially, are known to thrive in warmer and slower moving water.<sup>135</sup> Creating a reservoir at certain times of year would exacerbate the disadvantages of native fish relative to invasive bass. Building the dam would increase the bass population and its predation on juvenile salmonids, thereby decreasing the salmon population.<sup>136</sup> This is yet another way the dam is detrimental to not only economically and culturally critical salmon and steelhead populations, but also to many other native fishes of the Chehalis Basin ecosystem.

## VI. Shellfish & Macroinvertebrates

While knowledge of non-salmonid fish in the Chehalis River is incomplete, knowledge of shellfish and macroinvertebrates is even more limited. The NEPA DEIS Appendix on Aquatic Species and Habitats lacks a section on shellfish. The SEPA DEIS provides context for why this is the case: “The effects of the proposed actions on freshwater shellfish and aquatic macroinvertebrates are evaluated qualitatively because of a lack of documentation of their distribution in the primary study area, particularly in the areas that will be most affected in the temporary reservoir inundation area and the reaches immediately downstream of the proposed FRE site.”<sup>137</sup> The Corps should gather more information on these species when evaluating environmental impacts of the proposed dam.

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<sup>127</sup> 75 Federal Register 13012.

<sup>128</sup> SEPA DEIS at E-48.

<sup>129</sup> NEPA DEIS at K-23-24.

<sup>130</sup> 71 Federal Register 17757.

<sup>131</sup> *Green Sturgeon*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/species/green-sturgeon#conservation-management>.

<sup>132</sup> NEPA DEIS at K-24.

<sup>133</sup> SEPA DEIS at E-49.

<sup>134</sup> NEPA DEIS at K-2.

<sup>135</sup> SEPA DEIS at E-50

<sup>136</sup> See NEPA DEIS at K-41.

<sup>137</sup> SEPA DEIS at E-82.

Freshwater mussels have a significant role in filtering and cleaning water in the Chehalis Basin.<sup>138</sup> For the survival of their populations, longstanding mussel sites must be allowed to persist. In 2018, WDFW recognized that their surveys “likely covered only a fraction of the mussel distribution in the Chehalis Basin, and species composition was not determined.”<sup>139</sup> During flood retention, freshwater mussels would be completely inundated with sediment during and after floodwater impoundment.<sup>140</sup> The Corps also does not know how increased temperatures will impact freshwater larvae.<sup>141</sup> These gaps in knowledge should be addressed.

Unlike the SEPA DEIS, the NEPA DEIS does not fully reckon with the important role of macroinvertebrates in the Chehalis Basin. The SEPA DEIS recognizes that aquatic macroinvertebrates “play a crucial role in the decomposition of organic materials and are a critical link in the flow of energy through the food web, from primary producers to vertebrate predators.”<sup>142</sup> In places like the Chehalis River where macroinvertebrate populations are suffering, chronic human impacts like climate change, pollutants, temperature increases, and loss of riparian vegetation all preclude recovery.<sup>143</sup>

Further, “[d]ams that have modified the natural flow regime of streams and rivers remove the structuring influence of floods on invertebrate communities, in some cases leading to dramatic, often deleterious, shifts in community composition.”<sup>144</sup> “This is one reason,” the SEPA DEIS acknowledges openly, “a number of ecologists advocate for the return or maintenance of natural flood regimes to regulated rivers.”<sup>145</sup> The NEPA DEIS should acknowledge the important role of macroinvertebrates in the Chehalis Basin, and pursue further study of the risks from the proposed dam.

## VII. Southern Resident Killer Whales

The proposed dam would have a negative and inadequately studied effect on endangered Southern Resident Killer Whales (SRKW). These animals rely on Chinook salmon as they journey up and down Washington’s coast, and a dramatic reduction in Chehalis Chinook would hurt them in their fight for survival. The Southern Resident distinct population segment of killer whales is protected by the Marine Mammal Protection Act, and was federally listed as endangered under the Endangered Species Act in 2005 and updated in 2014.<sup>146</sup> Their designated critical habitat

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<sup>138</sup> SEPA DEIS at E-50.

<sup>139</sup> SEPA DEIS at E-51.

<sup>140</sup> NEPA DEIS at K-ES-4.

<sup>141</sup> NEPA DEIS at K-ES-10.

<sup>142</sup> SEPA DEIS at E-52.

<sup>143</sup> SEPA DEIS at E-54 (citing Hershey and Lamberti 1998).

<sup>144</sup> SEPA DEIS at E-54 (citing Poff et al. 1997).

<sup>145</sup> SEPA DEIS at E-54.

<sup>146</sup> 70 Federal Register 69903; 79 Federal Register 20802.

generally covers Puget Sound, the Salish Sea, and the Strait of Juan de Fuca,<sup>147</sup> but in the winter and spring they range the open coast from Monterey Bay, California up to southeast Alaska.<sup>148</sup>

Many Washingtonians do not realize just how endangered the SRKW population is. As of November 2019 the population stands at only 73 individuals, down from 98 in 1995.<sup>149</sup> According to the Marine Mammal Commission, an independent federal agency, “[t]he prospects for recovery appear bleak, as since 2015 there has been just one birth that produced a calf who survived to juvenile age.”<sup>150</sup> The top threats to Southern Resident Killer Whales are low prey availability, pollution and contaminants, vessel traffic, and noise.<sup>151</sup>

Washington’s governor understands the gravity of the whales’ situation and has taken action to try and remedy their prospects. In 2018, Governor Inslee signed an executive order directing state agencies to take certain immediate actions and established a task force with tribes, Canadian agencies, and other partners.<sup>152</sup> The order recognized that the “health of Southern Residents and Chinook salmon are tightly linked.”<sup>153</sup> Studies have shown that “reduced Chinook salmon runs undermine the potential for the Southern Resident population to successfully reproduce and recover,” and both salmon and whales are already under stress from warming oceans and ocean acidification.<sup>154</sup>

The importance of Chinook salmon to the SRKW cannot be overstated. Chinook salmon make up about 80% of their diet.<sup>155</sup> As of the most recent task force report from 2019, Goal #1 for whale recovery is to “[i]ncrease Chinook abundance.”<sup>156</sup> Three Southern Resident Killer Whales died in 2019, “a tragic reminder that the Southern Residents are struggling from a lack of Chinook salmon” compounded by other stressors.<sup>157</sup> Looking forward, the task force recognized the need to “[s]ustain the priority focus on increasing Chinook salmon abundance.”<sup>158</sup> And the focus needs to be on increasing Chinook abundance *everywhere* – Southern Residents make their home in Washington’s Salish Sea for much of the year, but they seek Chinook “along the West Coast from

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<sup>147</sup> 71 Federal Register 69054 - ENDANGERED AND THREATENED SPECIES; DESIGNATION OF CRITICAL HABITAT FOR SOUTHERN RESIDENT KILLER WHALE, <https://www.govinfo.gov/app/details/FR-2006-11-29/06-9453> (“Three specific areas are designated, (1) the Summer Core Area in Haro Strait and waters around the San Juan Islands; (2) Puget Sound; and (3) the Strait of Juan de Fuca, which comprise approximately 2,560 square miles (6,630 sq km) of marine habitat.”).

<sup>148</sup> SOUTHERN RESIDENT KILLER WHALE, MARINE MAMMAL COMMISSION, <https://www.mmc.gov/priority-topics/species-of-concern/southern-resident-killer-whale/>.

<sup>149</sup> FINAL REPORT AND RECOMMENDATIONS, SOUTHERN RESIDENT ORCA TASK FORCE 4 (November 2019), [https://www.governor.wa.gov/sites/default/files/OrcaTaskForce\\_FinalReportandRecommendations\\_11.07.19.pdf](https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf).

<sup>150</sup> SOUTHERN RESIDENT KILLER WHALE, MARINE MAMMAL COMMISSION, <https://www.mmc.gov/priority-topics/species-of-concern/southern-resident-killer-whale/>.

<sup>151</sup> *Id.*

<sup>152</sup> EXECUTIVE ORDER 18-02, SOUTHERN RESIDENT KILLER WHALE RECOVERY AND TASK FORCE (March 14, 2018), [https://www.governor.wa.gov/sites/default/files/xe\\_order/eo\\_18-02\\_1.pdf](https://www.governor.wa.gov/sites/default/files/xe_order/eo_18-02_1.pdf).

<sup>153</sup> *Id.*

<sup>154</sup> *Id.*

<sup>155</sup> FINAL REPORT AND RECOMMENDATIONS, SOUTHERN RESIDENT ORCA TASK FORCE 19 (November 2019), [https://www.governor.wa.gov/sites/default/files/OrcaTaskForce\\_FinalReportandRecommendations\\_11.07.19.pdf](https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf).

<sup>156</sup> *Id.*

<sup>157</sup> *Id.* at 4.

<sup>158</sup> *Id.* at 8.

Northern California to Southeast Alaska.”<sup>159</sup> In all regions, the state’s focus is on making Chinook salmon populations “abundant, diverse, and accessible.”<sup>160</sup> And yet, several observers of the effects of climate change on the Chehalis Basin have posited that “Chinook are the most vulnerable to the increasing temperatures because they spend the most time waiting in upstream areas to spawn.”<sup>161</sup>

Advanced study of marine biology is unnecessary to appreciate the existential threat that the proposed dam presents to this delicate food web. Southern Resident Killer Whales are already at risk of extinction, and this dam would have a disproportionately negative impact on their primary food source. Chinook salmon from the Chehalis River contribute to the Grays Harbor population, which in turn contributes to the salmon population available to Southern Resident Killer Whales along the coast.<sup>162</sup>

The DEIS acknowledges merely that reduction in spring-run Chinook would have a “slight” impact on the endangered Southern Resident Killer Whales,<sup>163</sup> apparently less than the “moderate” impact projected by the SEPA DEIS.<sup>164</sup> Based on a finding that Chinook salmon spawning above the proposed dam contribute less than 5% of the total Chinook coming out of the Chehalis Basin/Grays Harbor system, the NEPA DEIS projects a “low impact” from this “small loss.”<sup>165</sup> But this is a significant loss when the Chinook population today is already so much smaller than historic levels.<sup>166</sup> The NEPA DEIS must wrestle with this risk.

## IX. Failure to Address Climate Risk

The fish, wildlife, and people of the Chehalis Basin are already experiencing negative effects from climate change. The dam would exacerbate these effects, which is yet another reason that the Applicants should pursue local flood resilience instead.

It is genuinely shocking how little this NEPA DEIS analyzes climate change. It openly acknowledges that “[f]uture climate conditions were not modeled in this EIS,”<sup>167</sup> noting only that “[i]f there is more precipitation in the future, it is possible that the proposed flood retention facility would operate more frequently.”<sup>168</sup> While this dam’s fish passage is speculative, climate change’s impacts in Washington are not. In the Pacific Northwest, average winter precipitation will likely increase “over the long term, but year-to-year variability in precipitation is also

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<sup>159</sup> *Id.* at 19.

<sup>160</sup> *Id.*

<sup>161</sup> John Stang, *Will Flood Protection Set Back Salmon Restoration in the Chehalis River Basin?*, CROSSCUT (Feb. 12, 2020), <https://crosscut.com/2020/02/will-flood-protections-set-back-salmon-restoration-chehalis-river-basin>.

<sup>162</sup> DEIS at E-55.

<sup>163</sup> NEPA DEIS at K-66.

<sup>164</sup> SEPA DEIS at L-24.

<sup>165</sup> NEPA DEIS at K-66.

<sup>166</sup> This is an example of “shifting baselines”—when each new generation of scientists starts their careers observing wild populations that look normal to them, but that would look very small to prior generations of scientists. Daniel Pauly, *Anecdotes and the shifting baseline syndrome of fisheries*, 10 TRENDS IN ECOLOGY AND EVOLUTION 430 (1995).

<sup>167</sup> NEPA DEIS at ES-7.

<sup>168</sup> *Id.*

projected to increase.”<sup>169</sup> Average annual temperatures will increase 3.3°F to 9.7°F by 2070 to 2099, compared with the period of 1970 to 1999.<sup>170</sup> This is a steep increase in a short amount of time.

Temperature increases will cause more precipitation to fall as rain instead of snow during cold months,<sup>171</sup> which will have several consequences.<sup>172</sup> More water will flow into streams earlier in the spring and less in the late summer, moving the hydrograph curve earlier in the agricultural season.<sup>173</sup> The NEPA DEIS estimates that operation of the dam to retain floodwaters would occur once every seven years, but it is very likely that changes in precipitation patterns would result in the dam operating more often than projected.

For salmon in the Chehalis River, all observers agree that the prognosis is only worsening. One article reports that “[a]ccording to the state Department of Fish and Wildlife and other Chehalis observers, climate change is a major culprit in the salmon’s decline. In a January 2019 presentation in Centralia, state experts noted that only 25% of the Chehalis River Basin retains optimal temperatures for coho salmon.<sup>174</sup> That is expected to decrease to 6% by 2040 and to 2% by 2080.”<sup>175</sup> To repeat: already, only 25% of the basin retains optimal temperature, and it is dropping precipitously.<sup>176</sup> This is a lethal state of affairs. And these are the conditions *without* the proposed dam and associated removal of 600 acres of vegetation,<sup>177</sup> which would increase the temperature of the Chehalis River both upstream and downstream of the proposed dam site, further reducing the fraction of the river system with optimal temperatures for salmonids.<sup>178</sup>

Salmon need cold, flowing water to survive. When rivers run low, their temperatures increase and create environments where fish diseases can fester and spread.<sup>179</sup> Lower stream levels and increased water temperatures have led to enormous salmon die-offs in the Columbia River, especially during the 2015 drought when almost the entire sockeye salmon run died.<sup>180</sup> Future

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<sup>169</sup> Charles Luce et al., *Northwest*, in IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME II 1042 (D. R. Reidmiller et al., eds.) (2018).

<sup>170</sup> U.S. GLOBAL CHANGE RESEARCH PROGRAM, NORTHWEST: PROJECTED CLIMATE CHANGE, NATIONAL CLIMATE ASSESSMENT (2014), <https://nca2014.globalchange.gov/report/regions/northwest>.

<sup>171</sup> Luce et al., *Northwest*, FOURTH NATIONAL CLIMATE ASSESSMENT 1054 (2018).

<sup>172</sup> WASH. DEP’T OF ECOLOGY, PREPARING FOR CLIMATE CHANGE: WASHINGTON STATE’S INTEGRATED CLIMATE RESPONSE STRATEGY, Pub. No. 12-01-004, 37 (Apr. 2012).

<sup>173</sup> UW CLIMATE IMPACTS GROUP, CLIMATE CHANGE: OBSERVED CHANGES IN THE CLIMATE, <https://cig.uw.edu/learn/climate-change/>.

<sup>174</sup> John Stang, *Will Flood Protection Set Back Salmon Restoration in the Chehalis River Basin?*, CROSSCUT (Feb. 12, 2020), <https://crosscut.com/2020/02/will-flood-protections-set-back-salmon-restoration-chehalis-river-basin>.

<sup>175</sup> *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> Large trees (greater than 6-inch diameter) and non-flood tolerant trees would be removed in the reservoir and construction area – “affecting over 600 acres of upland, riparian, and wetland areas” SEPA DEIS at E-102.

<sup>178</sup> *Id.*

<sup>179</sup> See, e.g., Anna V. Smith, *How the Yurok Tribe Is Reclaiming the Klamath River*, HIGH COUNTRY NEWS 11 (June 11, 2018), <https://www.hcn.org/issues/50.10/tribal-affairs-how-the-yurok-tribe-is-reclaiming-the-klamath-river> [<https://perma.cc/E42Z-3835>] (describing how in 2002, 34,000 salmon died in the Klamath River because “the federal government had capitulated to public pressure from farmers and ranchers in the Klamath Basin and diverted water from the river to irrigate fields. The resulting low flows created a marine environment where fatal diseases could fester.”).

<sup>180</sup> Luce et al., *Northwest*, FOURTH NATIONAL CLIMATE ASSESSMENT 1067 (2018).

climate change scenarios, extensively researched, demonstrate that invasion and expansion of non-native species will increase.<sup>181</sup> These habitat changes will give non-native fish a competitive advantage, and some will become predators of native species.<sup>182</sup>

In sum, higher water temperatures are here and will continue to increase, and these temperatures kill salmon independently and by fostering ecological conditions that lead to premature salmon deaths. Proposals for flood management in the Chehalis Basin should aggressively mitigate these harmful outcomes rather than exacerbating them.

Further, the “full implications of ocean acidification on salmon are not known at this time.”<sup>183</sup> The NEPA DEIS completely fails to mention ocean acidification. Acidification should be considered as part of anticipated climate change effects, because it would most likely compound the negative effects of higher stream temperatures and bring salmonid survival rates even lower. Lower ocean survival makes it even more critical that salmon are protected during their time in fresh water.

## **X. The NEPA DEIS Should Have Studied A Local Action Alternative**

### *A Local Action Alternative*

The SEPA DEIS expressly studied a local action alternative—not the expandable dam, not the non-expandable dam, and not the no-action alternative, but an entirely different possibility for approaching flood management in the Chehalis Basin. In the SEPA DEIS, the “Local Actions Alternative considers a variety of local-scale actions that approximate the Applicant’s objective through improving floodplain function, land use management actions, buying out at-risk properties or structures, floodproofing buildings, channel migration protection, improving early flood warning systems, and increasing water storage from Pe Ell to Centralia through floodplain storage improvement.”<sup>184</sup> The NEPA EIS should analyze this option, and the Applicant should pursue these local actions rather than a dam.

Flooding in the Chehalis Basin is a devastating problem. Most recently, a flood in 2007 sparked the conversation that has led to this DEIS, but the causes are older than 2007, and multifaceted. For example, local leader and dairy farmer W. Jay Gordon explained to the New York Times that the causation of the floods and the tension around solutions for them is “not just logging. It’s not just farming. It’s not just development, and it’s not just environmentalists.”<sup>185</sup> Making the Chehalis Basin more flood resilient requires solutions as complex as the causes of the flooding.

A one-size-fits-all dam is tempting in its seeming simplicity but is a mirage of a solution. A dam would not effectively protect residents and livestock in the Chehalis Basin, and it would have devastating consequences for legally protected fishing economies. A Local Action alternative

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<sup>181</sup> SEPA DEIS at E-58 (citing Lawrence et al. 2012, Lawrence et al. 2014, Rubenson and Olden 2019).

<sup>182</sup> SEPA DEIS at E-58.

<sup>183</sup> SEPA DEIS at E-59.

<sup>184</sup> SEPA DEIS at v.

<sup>185</sup> William Yardley, *Anger and Blame After Deadly Flood in Northwest*, NEW YORK TIMES (Jan. 3, 2008), <https://www.nytimes.com/2008/01/03/us/03flood.html> (quoting W. Jay Gordon).

such as that described in the SEPA process is the only one that could result in compliance with tribal treaty rights, the Endangered Species Act, and other state protections for threatened species.

The Local Action alternative is also clearly the most cost-effective, despite a dearth of attention paid to budget analysis of this alternative. At a point in history when our state's budget may take decades to recover from the impact of coronavirus, it is not the time to engage in a dam construction project that would likely to lead to cost overruns in the millions of dollars.<sup>186</sup>

Development in the floodplain is one contributing cause of the severity of Chehalis floods. In 2007, the Seattle Times talked to a University of Washington scientist about how development can contribute to increased flooding impacts:

While individual filling projects might not appear to have an impact, the cumulative effect of repeated development in a floodplain can mean big trouble, the experts argue. It's like putting bricks in a bathtub. One brick displaces a little water. But a lot of bricks can force the tub to overflow. 'The more stuff you put in a flood plain, the higher the water the will rise,' said David Montgomery, a scientist at the University of Washington who has studied the history of rivers in Western Washington.<sup>187</sup>

CELP expressed its concern about this four years ago, in comments on the SEPA Draft Programmatic EIS for the Chehalis Basin. At that time, we commented that “building a dam would almost certainly promote development of the floodplains downstream—just as it has on the Green and Puyallup Rivers.” This would in turn create pressure to ensure that the new development would be protected from the flood risk remaining in the landscape.

More development in the basin would also stress the existing system of water rights. The Chehalis Basin is over-appropriated, so creating a situation that fosters development would threaten senior water rights, instream flows, and Indian federal reserved water rights by encouraging proliferation of permit-exempt wells. Instead of building in the floodplain and infringing on senior water rights, building outside of the floodplain would avoid the risk of flood damage and require no maintenance.

Flooding is not bad in itself; the negative human impacts are. Floods recharge groundwater and are essential to the overall ecology of the Chehalis Basin.<sup>188</sup> Since floods provide ecological benefits, the goal should be to reduce exposure to flood damage (e.g. by raising and relocating buildings), not to reduce flooding itself. The focus should be on eliminating the human cost of floods, rather than the floods themselves. In sum, the proposed dam would not solve the flooding problem, nor would a future expanded dam. Local actions for flood resilience is a more effective

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<sup>186</sup> Atif Ansar et al., *Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development*, 69 ENERGY POL'Y 43 (2014). (studying hydropower dams and concluding in general that cost “[e]stimates are systematically and severely biased below actual values,” and “[p]rojects that take longer have greater cost overruns; bigger projects take longer.”).

<sup>187</sup> Lynda V. Mapes, *Did Development, Logging Set The State for Disaster?*, SEATTLE TIMES (Dec. 9, 2007), <https://www.seattletimes.com/seattle-news/did-development-logging-set-the-stage-for-disaster/>.

<sup>188</sup> See NEPA DEIS at 45.

way to reach a solution that aids farmers and homeowners in the Chehalis Basin,<sup>189</sup> and deserves further study in the NEPA EIS.

### *Economic Advantage of Wetland Conservation & Restoration*

A comparative approach throws the short-sightedness of this dam proposal into greater relief. For example, experience in California's Sacramento Valley demonstrates that "alternative flood control systems can be designed without eliminating floodplain function and processes."<sup>190</sup> Their Yolo Bypass was "engineered to allow Sacramento Valley floodwaters to inundate a broad floodplain" of agricultural lands and seasonal and permanent wetlands.<sup>191</sup> The 24,000 hectare floodplain can convey "up to 80% of the flow of the Sacramento River basin during high water events."<sup>192</sup> Finding a comparable solution for the Chehalis Basin would require adapting floodplain solutions to its unique needs, but the Sacramento study demonstrates that this approach can succeed.

Similarly, a study of the Smith Creek Basin in Saskatchewan, Canada demonstrated that "wetland retention is an economically viable solution to limit the financial, social and environmental damages of flooding."<sup>193</sup> Draining wetlands increases downstream flood damage to local infrastructure and agriculture.<sup>194</sup> Conversely, retaining existing wetlands in that basin provides a social return on investment ratio of 7.7.<sup>195</sup> General flood management services provided by all types of wetlands give a social return on investment ratio of 3.17.<sup>196</sup> Wetlands and other ecological systems for building flood resilience make good economic sense.

Finally, a study of the Mississippi Basin demonstrated how building flood control infrastructure can backfire.<sup>197</sup> Despite a "massive effort" throughout the 20th century to build levees in the upper Mississippi Basin, mean annual flood damage "increased 140% during that time."<sup>198</sup> Given their study, the scientists suggested that it was:

[T]ime to develop a comprehensive flood management strategy that includes using wetlands to intercept and hold precipitation where it falls and store flood waters where they occur. History testifies to the truth of this premise: it was the rampant drainage of wetlands in the nineteenth century that gave rise to many of today's water resources management problems.<sup>199</sup>

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<sup>189</sup> See *infra*, Section X.

<sup>190</sup> See, e.g., Ted Sommer et al., *California's Yolo Bypass: Evidence That Flood Control Can Be Compatible with Fisheries, Wetlands, Wildlife, and Agriculture*, 26 FISHERIES 6 (2011).

<sup>191</sup> *Id.*

<sup>192</sup> *Id.*

<sup>193</sup> John K. Pattison-Williams et al., *Wetlands, Flood Control and Ecosystem Services in the Smith Creek Drainage Basin: A Case Study in Saskatchewan, Canada*, 147 ECOLOGICAL ECONOMICS 36 (2018).

<sup>194</sup> *Id.*

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> Donald L. Hey & Nancy S. Philippi, *Flood Reduction Through Wetland Restoration: The Upper Mississippi River Basin as a Case History*, 3 RESTORATION ECOLOGY 4 (1995).

<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

Restoring and maintaining wetlands is a powerful tool. In general, less harmful and simpler solutions abound. For example, a substantial portion of projected future flood damage could be reduced simply by increasing freeboard height, or elevation of structures.<sup>200</sup> Likewise, in the SEPA process, the “2017 Programmatic EIS stated that 75% of the residential structures and 25% of the commercial, industrial, and other non-residential structures in the Chehalis River floodplain could be protected through elevation, other floodproofing measures, and buy-outs.”<sup>201</sup> These ecologically compatible solutions are far superior to reducing floodplain resilience by removing wetlands,<sup>202</sup> which would impact multiple species in addition to reducing the flood capacity of the basin.

The Wild Salmon Center has suggested more effective long-term solutions for flooding that would also protect the river’s salmon runs, which include restoring natural floodplain function:

Restoring natural floodplain function to the Upper Chehalis means investing in habitat restoration, culvert removal, and de-channelization where the river has been artificially narrowed. We also need to be smart about development within the floodplain: discouraging more infill and hard surfaces, encouraging voluntary buy-outs, conservation easements, and sensible ways to move people and structures out of harm’s way.<sup>203</sup>

The dam would be a massive step in the wrong direction for building flood resilience. The SEPA DEIS found that building the dam would result in “the loss of ecological function across up to 847 acres of upland, wetland, and riparian vegetation communities from reoccurring inundation events that will result in sediment deposition, channel widening, channel migration, and future colonization by invasive vegetation.”<sup>204</sup> Wetlands are the kidneys of the landscape. Losing them means losing their massive ecosystem services and filtration abilities, which means losing ecological resilience at a moment in human history when we need it more than ever.

### *Design for Landscape Resilience*

Dams are a static solution to a dynamic problem. Rivers are alive in more ways than one. They move, change in size, and more. This is normal and necessary.<sup>205</sup> For decades, engineers and landscape designers have been studying how to design with rivers.<sup>206</sup> Similarly, hazard planners have worked with governments, including the United States, to develop landscape-based solutions to environmental risks.<sup>207</sup>

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<sup>200</sup> SEPA DEIS at 120.

<sup>201</sup> SEPA DEIS at 121.

<sup>202</sup> SEPA DEIS at E-24.

<sup>203</sup> CHEHALIS RIVER, WILD SALMON CENTER, <https://www.wildsalmoncenter.org/campaigns/chehalis-river/>.

<sup>204</sup> SEPA DEIS at E-122.

<sup>205</sup> Dorothy Mulkern, landscape architect/urban planner, personal communication (May 7, 2020).

<sup>206</sup> See, e.g., DONALD WATSON & MICHELE C. ADAMS, DESIGN FOR FLOODING: ARCHITECTURE, LANDSCAPE, AND URBAN DESIGN FOR RESILIENCE TO FLOODING AND CLIMATE CHANGE (2011).

<sup>207</sup> See, e.g., Robert C. Freitag, Daniel B. Abramson, Manish Chalana, & Maximilian Dixon, *Whole Community Resilience: An Asset-Based Approach to Enhancing Adaptive Capacity before a Disruption*, 80 J. AM. PLANNING ASS’N, 324–35 (2014).

According to landscape architects Watson & Adams, the “first step in resilient design for inland flooding is to identify and map areas of any existing natural features . . . that provide ecosystem services in absorbing rainfall.”<sup>208</sup> The next step is to develop “a plan that protects or restores these features.”<sup>209</sup> In performing both of these steps, the authors urge that special attention be dedicated to flow pathways of water, wetlands and the conversion of surface water to groundwater, native vegetation, geology and soils underlying water movement, and connectivity for native plants and wildlife.<sup>210</sup> In general, landscapes will be less flood-prone if they have less impervious land cover like asphalt. Porous pavement with infiltration beds can enable car travel and parking without contributing to water buildup during high flow events.<sup>211</sup>

During extreme rainfall events, the “capacity of any system, natural or man-made, to hold water will eventually be exceeded, and water will move downstream.”<sup>212</sup> In a natural system, the rate the water moves downstream is “buffered by wetlands, riparian buffers, and floodplains.”<sup>213</sup> These do two things: capture the volume of water, and slow the velocity at which it flows.<sup>214</sup>

When these assets are considered holistically, emergency planning becomes more resilient.<sup>215</sup> One University of Washington professor led a study to strengthen the Federal Emergency Management Agency (FEMA)’s process in Washington for hazard mitigation and recovery planning. Normally, hazard planning begins and ends with analyzing a hazard scenario and its effect on the built environment.<sup>216</sup> But when stakeholders begin by identifying built, natural, and social assets that contribute to human wellbeing before introducing the hazard scenario, a more realistic picture emerges. In the study, stakeholders also identified assets that could help them adapt to a new normal—neighborhood level social connections were a top priority.<sup>217</sup> This kind of planning identifies assets for resilience as well as assets that could aid in future adaptation following an emergency.<sup>218</sup>

In sum, these are precisely the kind of adaptations that should be studied as part of a NEPA Local Action alternative. Resilient landscape design focuses on solutions that can be long-lasting, in contrast to the proposed dam with, for example, fish passage that would require funding and staff for operation of the trap and haul system in perpetuity. For policymakers to make a robustly informed decision on the Applicant’s dam proposal, these alternatives must be better explored.

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<sup>208</sup> DONALD WATSON & MICHELE C. ADAMS, DESIGN FOR FLOODING: ARCHITECTURE, LANDSCAPE, AND URBAN DESIGN FOR RESILIENCE TO FLOODING AND CLIMATE CHANGE 103 (2011).

<sup>209</sup> *Id.*

<sup>210</sup> *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> *Id.* at 119.

<sup>213</sup> *Id.*

<sup>214</sup> *Id.*

<sup>215</sup> Freitag at 324.

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*

<sup>218</sup> *Id.*

## XI. Concluding Summary

The proposed Chehalis River dam described in the NEPA DEIS would not effectively manage floods: in a late-century catastrophic flood scenario, the dam would protect less than half of existing structures. In return, the dam would be a disaster for salmon, trout, and other fish already stressed by climate change, as well as creatures that rely on those fish, like endangered Southern Resident Killer Whales. The mitigation proposed for these negative impacts is largely speculative. Further, the DEIS violates NEPA by falsely segmenting the environmental analysis for an “expandable” dam. In its final EIS, the Army Corps should include climate change in its modeling and seriously consider a “local action” alternative. Building any dam would make no practical, environmental, or economic sense, and would violate the U.S. Government's legal obligations under treaties with Indian nations, which have the status of federal law, and the Endangered Species Act. Instead, the Army Corps should foster wetland restoration and other resilient designs to make the floodplain safer for people.

Please do not hesitate to contact CELP if you have questions about the above or would like any clarifications. Thank you again for accepting these comments.

Best Regards,

A handwritten signature in black ink that reads "Trish Rolfe". The signature is written in a cursive, flowing style.

Trish Rolfe  
Executive Director, The Center for Environmental Law & Policy



November 17, 2020

Brandon Clinton, Project Manager  
US Army Corps of Engineers  
Regulatory Branch  
P.O. Box 3755  
Seattle, WA 98124-3755

Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, OR 97219

RE: Wild Salmon Center Comments, Proposed Chehalis River Basin Flood Damage Reduction Project, Draft Environmental Impact Statement under the National Environmental Policy Act; Application for a Department of the Army Permit, NWS-2014-1118

Mr. Clinton,

Please accept the following comments from the Wild Salmon Center (WSC) on the Army Corps of Engineers (ACOE) draft Environmental Impact Statement (DEIS) for the proposed Chehalis River Basin Flood Damage Reduction Project ("Project") as proposed by the Chehalis River Basin Flood Control Zone District ("Applicant"). WSC appreciates the opportunity to comment on this proposed action.

The Applicant seeks a Clean Water Act Section 404 dredge/fill permit from ACOE to construct a Flood Retention Expandable structure ("FRE") on the Chehalis River and to raise an existing levee located at the Chehalis-Centralia Airport. These activities would result in the fill of several acres of wetlands, which are regulated by ACOE as waters of the United States, thus triggering the need for a 404 permit under the Clean Water Act ("CWA").

### **Interested Party Background**

The Wild Salmon Center is the leading group working to protect the strongest wild salmon rivers around the entire North Pacific. We work from northern California and the Pacific Northwest, up to British Columbia and Alaska and across to Russia and Japan.

INTERNATIONAL HEADQUARTERS

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We focus on salmon because they are an iconic and powerful conservation symbol, wild to the core, with an incredible life story. The most beautiful and important rivers of the North Pacific all depend on salmon and the nutrients they carry inland from the ocean. When you protect salmon, you protect entire watersheds and everything within them, including people.

We focus on wild salmon, if we want salmon around for our kids and grandkids, we must protect wild salmon, they are among the most adaptable creatures on the planet. Wild-born fish are the best equipped to survive in the face of industrial development, human population increases, and climate change.

We focus on strongholds. We target salmon strongholds- the richest, strongest salmon rivers in the Pacific- because it is easier to protect rivers while they are still healthy and thriving. History tells us it is incredibly difficult and expensive to fix a river once it is dammed, mined, diverted, or otherwise broken.

We build powerful alliances with the most effective local and regional partners working in the North Pacific's salmon strongholds. We help these groups design and implement winning strategies built on our scientific, political, legal, fundraising and communications expertise. Since 1992, we and our partners have together secured 71 rivers and 9 million acres in protected areas or special wild fish management areas.

### **Comment Summary**

As described in further detail below, the DEIS fails to meet the fundamental requirement of NEPA and the criteria required to justify issuance of a CWA 404 permit because it:

- Fails to meet NEPA requirements
- Future compliance with federal laws fails to properly inform decision makers
- The DEIS is not based on credible best available science and fails to take requisite hard look at impacts
- ACOE has failed in its trust responsibility to protect treaty rights

### **Detailed Comments**

#### **I. DEIS fails to meet National Environmental Policy Act requirements**

- a. The stated purpose and need are unreasonably narrow and improperly dictate alternatives

There are numerous flaws with the purpose and need statement, alternative screening process, and selection of alternatives for analysis in the DEIS. These flaws demonstrate

an invalid process that does not support the proposed project as the only solution to the stated problem.

This DEIS makes a strong case of ACOE predetermining the preferred alternative by providing an arbitrarily narrow purpose and need statement. Utilization of this narrow purpose and need statement subsequently results in the selection of DEIS alternatives under a flawed methodology, violating NEPA requirements to consider all reasonable alternatives and subsequently failing to appropriately foster informed decision-making.

First and foremost, flood damage reduction does not equal flood level reduction. As is currently being demonstrated across the United States, there are many proven measures to reduce flood damage without reducing flood levels. These measures can include levees, flood walls, flood proofing, farm pads, buyouts, raising structure elevations, and watershed restoration. Many of these measures are currently being implemented at various scales throughout the Chehalis Basin. All of these measures would have relatively smaller impacts to the ecosystem than the proposed project, making them viable and even superior alternatives to the proposed project. Despite this, the DEIS links its screening for a potential alternatives to reductions in 100-year flood elevations without justifying why flood damage can only be reduced through reduction in flood levels at four specific river gauge locations: Mellen Street, Adna, Chehalis Wastewater Treatment Plant, and Grand Mound. The demarcation of the target area is not supported by the need statement and appears to reverse-engineer the screening metrics to the preferred alternative, effectively excluding any other potential solution than a dam at the proposed location.

ACOE failed to consider all reasonable alternatives. Aside from the required No Action Alternative, the DEIS only includes review of a second version of the preferred dam and levee project alternative, a non-expandable dam.

Concerning the selection of alternatives, the DEIS is not transparent about its evaluation of other alternatives. No information is provided concerning the basis of the qualitative ranking process utilized. The screening process also failed to consider combinations of any of the 61 potential alternatives, except combinations similar to the proposed project. This results in a myopic evaluation process that failed to fully explore the possibilities of alternate ways to meet the purpose and need as stated in the DEIS.

- b. The purpose and need fail to justify the expandable dam/levee project alternative

The purpose and need fail to support that a future expanded dam with a larger reservoir footprint is needed, thus failing to comply with NEPA requirements to consider reasonable alternatives. The DEIS fails to provide any justification for the expandable FRE alternative and excludes the consideration of future climate conditions, which would be the only explanation for the need of the expandable project alternative. Thus, this fails to justify the expandable project alternative as an alternative that meets the purpose and need as stated in the DEIS.

- c. DEIS failed to fully consider cumulative and indirect impacts as required by NEPA

The DEIS does not disclose or quantify the permanent, temporary, indirect, and cumulative impacts from construction and operation of the proposed project in a consistent or accurate manner. This subsequently prevents regulatory decision makers from having an accurate representation of the impacts to acres, ecosystem processes, and functions that would occur to the ecosystem and its inhabitant species as a result of the proposed project.

Although the expandable dam is included as an alternative, the impacts of the expandable structure are not at all addressed. The impacts of the expandable dam alternative should have been analyzed as both an indirect and cumulative impact. Additionally, the DEIS only evaluated impacts of the project over a 50-year time period. Despite the fact that large dams are built to stay in place for a much longer duration. The DEIS does not include any commitment that the proposed project would be demolished in 50 years, and thus the evaluation period is arbitrary and misleading subsequently minimizing the cumulative impacts of the project. Thus, the DEIS fails to comply with NEPA requirements to fully disclose and analyze the past, present and future direct, indirect, and cumulative impacts from construction and operation of the proposed project.

- d. The DEIS fails to provide a comprehensive flood risk evaluation for target area, compounding the lack of justification for choosing the FRE as the proposed project

Best available science for flood risk mitigation and flood damage reduction dictate that flood risks to a target area be comprehensively evaluated across the landscape in order to provide reasonable assurance that the best techniques are applied to the appropriate areas. Flooding in the Chehalis-Centralia area and throughout the basin, from multiple sources, is well documented. Despite this, the DEIS through its myopic preferred alternative, narrowly focused on flooding from a single source in the Chehalis Basin. There is no analysis of how increases to peak flows from these other sources will affect downstream flood stage, regardless of the impoundment of flood waters from the proposed project. Without this analysis it is impossible to determine whether the proposed project would meet the stated purpose and need during the period of analysis. This failure to evaluate different geographic sources of flooding compounds the DEIS' failure to meet its stated purpose and objectives.

- e. The stated metrics for meeting the purpose and need are not met

Not all of the four flood elevation reduction metrics tied to the proposed project's purpose and need are met. As the DEIS fails to comprehensively evaluate all potential sources of flooding for this area, it cannot definitively conclude that the two areas deemed to meet the target metric would actually be removed from flood risk with the proposed project. Due to the DEIS' failure to include future climate predictions (despite their availability) in their analysis, the protection of structures from flooding is

most certainly over reported. The DEIS fails to validly demonstrate its metrics for achieving the stated purpose and need would be met by failing to analyze future climate conditions and failing to assess all potential sources of flooding. As such, the DEIS does not satisfy the NEPA requirement to rigorously and objectively evaluate all reasonable alternatives or to recognize the worldwide and long-range character of environmental problems, such as climate change.

f. Mitigation is not described or analyzed as required by NEPA

NEPA requires identification and discussion of mitigation for environmental effects identified in the DEIS in enough detail that a decision maker can understand and assess whether and to what extent significant impacts can be avoided or mitigated. If impacts cannot be avoided or mitigated, that fact must be disclosed. The DEIS fails to identify or analyze actual mitigation of the most serious ecosystem impacts identified in the DEIS. The failure of the DEIS to adequately identify actual mitigation and discuss and analyze how effective that mitigation might be, or where it might occur, indicates that the harm caused by the proposed project will occur with mitigation only being conceptual. Failure to assess mitigation in the DEIS, results in the failure to meet the NEPA requirement of clearly stating whether mitigation of an impact is in fact feasible.

g. Clean Water Act requirements are not met and 404 permit cannot be issued

ACOE's determination of whether it can issue a 404 permit depends upon meeting four prerequisites. The first of which is: "[N]o discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). Due to the unreasonably narrow purpose and need statement, only two dam alternatives as analyzed in the DEIS. However, a non-dam alternative that was deemed viable in the State Environmental Protection Act DEIS and would have a significantly less adverse impact on ecosystems than the proposed dam alternatives, should have been included in analysis.

The failure to include any quantitative climate change analysis prevents the accurate understanding of adverse impacts to waters, wetlands, and aquatic resources from the proposed project. This also results in the underestimation of the frequency, duration and spatial extent of the reservoir and the potential impacts to waters and wetlands and associated ecosystem processes, as well as the amplification of those impacts over time if the proposed project were to be approved. Thus, based upon the analysis presented in the DEIS, this criterion cannot be met.

The DEIS does not provide information to confirm that the proposed project would comply with applicable State water quality standards. Additionally, the DEIS demonstrates that the proposed project will jeopardize ESA-listed species, thus failing to meet the second criterion.

The DEIS relies upon inaccurate hydraulic and geomorphic modeling to project impacts on downstream floodplain wetlands and water, and fails to utilize climate change projections to assess impacts, while presenting a simplistic and inaccurate picture of the magnitude and intensity of impacts that would result from modifying the flow of water, sediment, and wood if confined to flowing through the low-level outlets of the proposed project. Additionally, the analyses of impacts on salmon and other aquatic species from the proposed project were not sufficiently analyzed in the DEIS and are very likely underestimated. Thus, the third criterion is not met and cannot be met given the magnitude of impacts that cannot be mitigated.

As described previously, the DEIS fails to provide an actual mitigation plan or demonstration that adverse impacts to the aquatic ecosystem have been, or can be, minimized. Thus, the fourth criterion is also not met. Thus, the analysis in the DEIS fails to support issuance of a 404 permit as the CWA criteria for issuance have not been met.

## II. Future compliance with federal laws fails to properly inform decision makers

### a. Endangered Species Act

The DEIS does not provide complete information about impacts to ESA-listed species, such as the Southern Resident Killer Whales (SRKW). While they are mentioned in the DEIS, impacts from the proposed project were only cursorily addressed. Salmon from the Chehalis Basin, particularly spring Chinook, are a key winter food source for SRKW and increasing the abundance of spring Chinook is critical for their recovery. The proposed project has potential to severely harm spring Chinook populations, and subsequently harm SRKWs.

The failure of ACOE to initiate consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service and to include relevant measures to protect ESA-listed species that would be harmed by this project fails to provide decision makers with the information necessary to make a fully informed permit decision.

### b. Marine Mammal Protection Act

The MMPA prohibits, with certain exceptions, the “take” of marine mammals in U.S. waters, including harassment, hunting, capture, collection, or killing, or “any other negligent or intentional act which results in disturbing or molesting a marine mammal.” SRKW are among those marine mammals that might be affected by the proposed project as they are reliant on salmon from the Chehalis Basin. Despite this, the DEIS fails to recognize and evaluate the degree to which the proposed project would result in the harassment of local marine mammal populations nor do they provide any viable mitigation proposals to ameliorate the detrimental effects of this harassment.

### c. Magnuson-Stevens Fishery Conservation and Management Act

ACOE determined the proposed project would adversely affect designated Essential Fish Habitat for federally managed fishers in Washington waters. Under the MSA,

ACOE must consult with NMFS regarding impacts to essential fish habitat and seek recommendations regarding measures that can be taken to conserve it. Failure to initiate consultation with NMFS and include relevant measures to protect the anadromous fish species using the Chehalis Basin fails to provide decision makers with adequate information to make a fully informed permit decision.

d. Fish and Wildlife Coordination Act

The FWCA requires consultation with the USFWS about the proposed project. The FWCA also requires consultation with the Washington Department of Fish and Wildlife (WDFW). The DEIS does not include an explicit record of wildlife resource loss and damage prevention as required under the FWCA. Failure to initiate consultation with USFWS and WDFW as required under FWCA fails to provide decision makers with adequate information to make a fully informed permit decision.

III. The DEIS is not based on credible best available science and fails to take requisite hard look at impacts

a. Impacts in both frequency and duration are underestimated

Despite reference to climate projections related to future trends in temperature, precipitation and flooding occurrence, the analysis of impacts associated with frequency and duration of operation the proposed project ignores future climate trends. This is despite the availability of climate change projections developed by the University of Washington Climate Impacts Group. Exclusion of this quantitative analysis of projected increases in frequency and magnitude of flood events results in the DEIS underestimating the frequency of operation of the proposed project and all associated impacts. By not incorporating climate change projections, the DEIS cannot adequately provide decision makers with the information necessary to determine whether the future achievement of the flood damage reduction metrics can meet the stated purpose and need.

b. The DEIS does not address ecosystem effects

The DEIS fails to provide meaningful analysis that actually quantifies the interaction of the processes affected by the proposed project in an ecosystem framework. Based upon the well-established interactions between geomorphic, hydrologic, and ecological processes that form and maintain high quality aquatic habitat, the impairment of several of those individual processes will set in motion a much larger cascade of impacts that will amplify over time. The synchronous alteration to multiple, connected natural processes that sustain aquatic habitat sets up a positive feedback loop in which the overall impact to ecosystems is amplified relative to the alteration of any one process. However, neither the cascade of effects, nor the amplification of effects are adequately or appropriately analyzed in the DEIS and its associated discipline reports. Thus, the DEIS presents only cursory analysis and grossly underestimates the potential for impacts to waters and wetlands, fish and wildlife species and habitats, and to the very processes that create and sustain functional rivers and floodplains through time. If

approved, the project would have impacts to aquatic species and habitats that cannot be mitigated.

c. Impacts to fish and habitat are underestimated

The DEIS fails to evaluate impacts of future climate change, despite a clear recognition that climate change patterns are projected to worsen certain environmental conditions for salmon. This failure is a significant omission. The science is clear, salmon populations are particularly sensitive to climate change impacts. When coupled with environmental degradation initiated by construction and operation of the proposed project and foreclosure of opportunities to restore habitat upstream of the proposed project or improve resiliency, climate change will heighten risks to the viability of the salmon populations. The DEIS ignores these considerations and fails to provide a sound basis for its conclusions regarding the scale and intensity of impacts to aquatic species. Thus, the impacts on salmon and other aquatic species from the proposed project were not sufficiently analyzed in the DEIS and are very likely underestimated. Subsequently, the DEIS does not provide a sound scientific foundation on which to base a decision regarding issuance of a 404 permit.

d. DEIS fails to consider all impacts from all project components

There are numerous additional shortcomings in the DEIS assessment of impacts from the proposed project, such as impacts associated with: quarry development, construction of the concrete production facility, relocation of the Pe Ell water line, risk of landslides, and road construction. Additionally, impacts to macroinvertebrates, amphibian and wildlife species are not fully analyzed in the DEIS. Thus, numerous direct and indirect impacts have been wholly underestimated, or insufficiently analyzed in the DEIS. These failures represent an overall failure to comply with NEPA requirements to take a reasonably thorough and hard look at the environmental consequences of the proposed project so that the decision of whether to issue a 404 permit is founded on a reasoned evaluation of the relevant factors.

IV. ACOE has failed in its trust responsibility to protect treaty rights

Both the Confederated Tribes of the Chehalis Reservation and the Quinault Indian Nation have depended upon resources from the Chehalis Basin since time immemorial. ACOE has a heightened duty and trust responsibility to protect Treaty rights. Despite this obligation, meaningful government to government consultation, specific to the potential impacts on tribal treaty rights has not occurred. This is wholly unacceptable.

**Conclusion**

It is well documented that it is far easier and less costly to protect existing habitat than it is to restore degraded habitat. Construction and operation of the proposed project would irreparably affect environmental conditions in the Chehalis Basin, which are critical to the Basin's ability to sustain ecological processes that affect the abundance

and productivity of fish, wildlife, and native plants. Diversity within the Chehalis Basin is important for the long-term resiliency and sustainability of the natural ecosystem.

Key ecological processes, species and their life histories within the ecological region of the upper Chehalis Basin would be effectively devastated if the proposed project were constructed and operated. It would adversely affect the overall ecological integrity of the entire basin, of which the DEIS did not adequately assess. Additionally, species habitats would be adversely affected by the anticipated increase in demand for development of the floodplain following the purported reduction in flood risk. The DEIS fails to provide any information or assessment on the location, magnitude, or type of development or attempt to quantify any of its associated impacts.

The DEIS also fails to provide specific information on how projected impacts would affect the ability of the Chehalis Basin Strategy to achieve its dual goals of reducing flood damage and restoring aquatic species throughout the Chehalis Basin. The limitations imposed by the framing of the DEIS prevent consideration of alternative actions for achieving flood damage reduction and restoration of aquatic species.

Development of a viable non-dam local action flood resilience alternative offers the only sustainable long-term solution to the challenges of the Chehalis Basin, with no risk of pervasive ecosystem impacts or catastrophic flooding caused by dam failure. A flood resilience program would provide benefits throughout the Chehalis Basin and can be targeted to provide the greatest benefit for the cost, focusing on structural solutions (i.e. levees, floodwalls) in densely population areas and non-structural solutions (i.e. floodplain reconnection, floodproofing, buyouts, relocation) in rural areas.

Key elements of flood damage reduction, particularly buy outs and relocation, are the only permanent solutions forever removing the risk of flood damage and requiring no ongoing operation, maintenance, or replacement costs. Acquisitions and relocations permanently remove flood damage liabilities while providing valuable environmental benefits and are now the preferred mechanism to reduce flood risk by the Federal Emergency Management Agency. A flood resilience program would be completely compatible with the Chehalis Basin Strategy's Aquatic Species Restoration Plan, opening up large areas of floodplain for restoration and sustaining the natural processes such as flooding and channel migration that support ecosystem services and resilient fish and wildlife populations.

The paradigm of the future is to rethink flood damage reduction through collaborative development of a viable and sustainable non dam flood resilience program. The Wild Salmon Center appreciates the opportunity to provide comments on this DEIS. Development of a comprehensive solution to address flooding, farming, and fisheries in the Chehalis Basin will take long-term commitment and we appreciate being part of the process.

Sincerely,

*Jessica L. Helsley*

Jessica L. Helsley  
Washington Director

**Commenter:** Tammy Domike  
**Affiliation:** Citizens for a Clean Harbor  
**Method of Comment:** Web  
**Date:** 11/18/2020

## Comment

Dear Army Corps Reviewers,

I have lived in Hoquiam for 12 years now, but my heart has always been within the Chehalis Basin. I am the granddaughter of the Wendler family, who originally logged the river in the 1950s. I grew up with relatives in Roy, Yelm, Rainier, Tenino, Centralia and Chehalis. I can guarantee I am related to someone in each of those towns to this day.

I am not in favor of the FRO/FRE option for the Chehalis River. This is not acceptable for many reasons. The storage area of waters would need to be kept clear of any growth, which in itself will warm the waters to unacceptable levels. These headwaters should be restored to encourage salmonids to use the ecosystem.

The dam (which it is), will only shorten the length of time land is flooded. Losing salmon for the freeway to open two days early does not warrant this action.

The dam will only reduce flooding to a handful of buildings, far too few to justify destroying the habitat of so many species. The responsible action would be to move people out of harm's way. Help home owners raise their houses above flood levels. Quit promoting commercial real estate within the flood zone, and reinforce the riparian zones.

Lewis County, upon the initial news of early Legislative approval, began selling new Industrial property! We cannot allow the greed of Lewis County realtors & council members to force the destruction on the rest of the river basin.

Even if the dam did operate as the fairytale fiction proposes, the initial building process of 5 years will harm the creatures lining in and along the river. All of the materials need to be brought in from elsewhere, and the skilled workers will have to commute to the location. As of this transport increases greenhouse gasses. The roads that would need to be constructed and maintained will compact the ground, and cause more landslides and silt during heavy rains.

The costs estimates look vastly underestimated. Cost over-runs are a constant on any project of this scope, and the estimated cost will surely soar in coming years.

## **Chehalis NEPA EIS Public Comment Record**

A healthy river and ecosystem is vital to the Tribal communities and Treaties must be honored. While I am enrolled in the Steilacoom Tribe of the Nisqually basin, I incorporate by reference comments submitted by the Quinault Indian Nation, the Confederated Tribes of the Chehalis Reservation.

I also refer you to the comments by Friends of Grays Harbor.

Please consider natural remediation as the only way to ensure Salmon continue to run for people and whales.

The irony of writing my comment today, during what could have developed into another tragic storm, is not lost on me. I hope you consider that during your decision making.

Thank you,

Tammy Domike

Community Organizer, Citizens for a Clean Harbor

823 Bluff Ave

Hoquiam, WA 98550



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November 17th, 2020

Brandon Clinton, Project Manager  
U.S. Army Corps of Engineers, Seattle District  
P.O. Box 3755  
Seattle, WA 98124-3755

Submitted Electronically: <chehalis@usace.army.mil>

RE: American Whitewater Comments on Chehalis River Basin Flood Damage Reduction Project  
NEPA Environmental Impact Statement

Dear Mr. Clinton:

I am writing on behalf of American Whitewater regarding the Army Corp of Engineers Chehalis River Basin Flood Damage Reduction Project NEPA Environmental Impact Statement. American Whitewater is opposed to a new dam on the Chehalis River (aka Flood Retention Expandable Facility or Flood Retention Only Facility). State and federal agencies should cease efforts to dam the Chehalis. Instead, resource agencies should lead an effort to enhance natural floodplain storage capacity, provide mitigation and assistance to landowners in the floodplain, discourage new floodplain development, and improve opportunities for the public to use and enjoy private forest lands for recreation. Healthy rivers, vibrant fish runs, and outdoor recreation are keystones to the quality of life in the Pacific Northwest. We should be seeking ways to secure these values for the future while addressing the issues of flooding and fisheries declines.

### **Interest of American Whitewater**

American Whitewater is a national non-profit 501(c)(3) river conservation organization founded in 1954 with approximately 50,000 supporters, 6,000 dues-paying members, and 100 local-based affiliate clubs, representing whitewater enthusiasts across the nation. American Whitewater's mission is to protect and restore America's whitewater rivers and to enhance opportunities to enjoy them safely. The organization is the primary advocate for the preservation and protection of whitewater rivers throughout the United States, and connects the interests of human-powered recreational river users with ecological and science-based data

to achieve the goals within its mission. Our vision is that our nation's remaining wild and free-flowing rivers stay that way, our developed rivers are restored to function and flourish, that the public has access to rivers for recreation, and that river enthusiasts are active and effective river advocates. As an organization that represents recreational river runners on issues related to both conservation and public access to waterways, American Whitewater has an interest in the Chehalis River. A significant percentage of our members reside in Washington State—a short driving distance from this river for recreation.

The Chehalis River has one of Washington State's longest continuous sections of Class III whitewater, yet it remains relatively unknown to many paddlers due to access issues involving restrictive policies of a private timber company. The reaches below the proposed dam site were mapped and documented for recreational use by Wolf Bauer on the Washington Kayak Club's Kayaking River Map during the 1950s and 1960s.<sup>1</sup> The reach upstream of the proposed dam site was first described in detail in *A Guide to the Whitewater Rivers of Washington*;<sup>2</sup> it is also included in American Whitewater's National Whitewater Inventory.<sup>3</sup> A new flood control dam proposal would eliminate 14 miles of this wild and free-flowing Class III whitewater (West Fork to Pe Ell), forever keeping paddlers from discovering this underused trove of quality whitewater in southwestern Washington. Our vision is for a river that remains free-flowing and is accessible to the public.

### **Process Comments**

While we appreciate the attempt to make accommodations in response to the evolving health and safety policies designed to hinder the spread of COVID-19 in Washington, we feel they resulted in inadequate public engagement. We greatly appreciate that the Army Corps of Engineers did provide an email comment option that was utilized by our members and supporters.

### **Comments on Purpose and Objective**

The project purpose is defined as to, “reduce the duration and level of flooding.”<sup>4</sup> Unfortunately both action alternatives include construction of a dam that would result in unacceptable impacts to the affected environment. Recognizing these significant impacts, Washington Governor Inslee called for “the development of a basin-wide, non-dam alternative

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<sup>1</sup> <https://www.americanwhitewater.org/content/Document/view/documentid/578/>

<sup>2</sup> Bennett, J. 1991. *A Guide to the Whitewater Rivers of Washington*. Swiftwater Publishing Company.

<sup>3</sup> <https://www.americanwhitewater.org/content/River/detail/id/2081/>

<sup>4</sup> Section ES.3, Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

to flood damage reduction.”<sup>5</sup> Without analysis of such an alternative, the EIS is incomplete. As the EIS acknowledges, the proposed project “high impact to the natural environment over the long term” due to reduced fish passage and habitat degradation.<sup>6</sup> In our view, the “benefits” of the proposed dam would not justify the significant cost and severe and irreversible adverse impacts of the proposed project. The proposal represents a 19th century approach to a problem that requires 21st century solutions that apply modern science and a current understanding of ecosystem function.

As an alternative to the dam, we urge the Army Corps of Engineers to work with Washington State on a non-dam alternative that takes a comprehensive approach to mitigate flood damage throughout the Chehalis Basin without further degrading the Chehalis River system.

### **Comments on Recreation**

Several sections of the document incorrectly refer to our organization as the American Whitewater Association. This should be corrected to reflect the fact that we are incorporated as American Whitewater (at one time we were incorporated as American Whitewater Affiliation, an affiliation of paddling clubs across the country, but we have never been the American Whitewater Association).<sup>7</sup>

The EIS notes that recreational impacts were evaluated qualitatively.<sup>8</sup> This level of assessment is inadequate given the high adverse impacts to recreation that are predicted to occur. A comprehensive quantitative analysis of recreational impacts is appropriate and necessary. In our previous comments, American Whitewater requested a site visit focused on recreation.<sup>9</sup> We have directly participated in dozens of studies to evaluate the impacts to whitewater recreation of proposed and existing dams. As noted in our prior scoping comments, an established peer-reviewed methodology for these studies is available from the National Park Service Rivers and Trails Conservation Assistance program.<sup>10</sup> Unfortunately the EIS only

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<sup>5</sup> Letter from Washington Governor Inslee to Washington State Department of Ecology Director Laura Watson and Washington State Department of Fish and Wildlife Director Kelly Susewind, July 22nd, 2020.

<sup>6</sup> Section ES.5.3, Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

<sup>7</sup> <https://www.charitynavigator.org/index.cfm?bay=search.summary&orgid=7797>

<sup>8</sup> Section 5.5.3.1, Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

<sup>9</sup> Scoping Comments of American Whitewater on Chehalis River Basin Flood Damage Reduction Project Environmental Impact Statement, October 29th, 2018,

<<https://www.americanwhitewater.org/content/Document/view/documentid/2178/>>

<sup>10</sup> Whittaker, D. B. Shelby, and J. Gangemi, 2005. Flows and Recreation: A Guide to Studies for River Professionals. Hydropower Reform Coalition and National Park Service – Hydropower Recreation Assistance. Available at: <https://www.nps.gov/ncrc/programs/hydro/flowrec.htm>

included a cursory review of impacts to recreation that was substantially less than is standard for projects of this scope and scale.<sup>11</sup>

In addition to impacts on salmon habitat and overall river health that will be degraded with construction of a dam on the Chehalis River, recreational opportunities on the river would be lost with the construction of a new dam. We concur with the analysis in the EIS that a new dam on the Chehalis River would result in a “high impact [to fishing and boating] because it was assumed that up to 6 miles of the Chehalis River in this area would be permanently closed to these activities.”<sup>12</sup> The actual impact would be significantly greater given that the 6 miles most directly impacted are midway through a 14 mile run representing one of the longest stretches of continuous class III whitewater in the state. Additionally, the statement that this “accounts for less than 1% of the entire Pe Ell South Permit Area”<sup>13</sup> inappropriately downplays the impact given that the river itself is a disproportionate factor in the value of the watershed for recreational pursuits. The value of river corridors as a focus for recreational activities is well established in the literature and an action that directly impacts the river corridor has a disproportionate impact on recreational activities in the entire watershed.<sup>14</sup>

The EIS also states that “boating use is anticipated to be low” during periods of high flows.<sup>15</sup> This statement is speculative at best and not based on any analysis of instream flow needs for recreation. Many of our members prefer higher flows that are optimal for a quality whitewater boating experience. As noted previously, a quantitative analysis would need to be completed to sufficiently evaluate impacts to recreational boating.<sup>16</sup>

While current access policies implemented by Weyerhaeuser restrict access, our vision for the future is a river that is open and accessible and not lost permanently by a dam and reservoir that would foreclose use of this reach of the Chehalis River for whitewater kayaking and rafting. We have encouraged the state to work with private forest landowners to enhance recreational opportunities on rivers that flow through commercial timberlands. Outdoor recreation is

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<sup>11</sup> Section 5.5, Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

<sup>12</sup> Section 5.5.3.3.2, Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

<sup>13</sup> Section 5.5.3.2.2., Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

<sup>14</sup> Kakoyannis, C. and G.H. Stankey. 2002. Assessing and evaluating recreational uses of water resources: implications of an integrated management framework. PNW-GTR-536. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 59 p.

<sup>15</sup> Section 5.5.3.3.2, Chehalis River Basin Flood Damage Reduction Project, NEPA Environmental Impact Statement, US Army Corps of Engineers, September 2020.

<sup>16</sup> Whittaker, D. B. Shelby, and J. Gangemi, 2005. Flows and Recreation: A Guide to Studies for River Professionals. Hydropower Reform Coalition and National Park Service – Hydropower Recreation Assistance. Available at: <https://www.nps.gov/ncrc/programs/hydro/flowrec.htm>

important to our quality of life in the Pacific Northwest. We should be seeking ways to improve opportunities to enjoy outdoor recreation and access to our waterways and not further limit them.

### **Conclusion**

American Whitewater is opposed to a new dam on the Chehalis River based on the degradation of the Chehalis River system that would result and the significant and unavoidable adverse environmental impact to whitewater recreation. As an alternative to the dam, we urge the Army Corps of Engineers to instead work with Washington State to adopt a comprehensive plan that mitigates flood damage throughout the Chehalis Basin without further degrading the Chehalis River system. Such an approach should apply modern science and a current understanding of ecosystem function.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. O'Keefe', with a long horizontal stroke extending to the right.

Thomas O'Keefe, PhD  
Pacific Northwest Stewardship Director

**From:** [Arthur \(R.D.\) Grunbaum](#)  
**To:** [Chehalis](#)  
**Cc:** [Clinton, Brandon C CIV USARMY CENWS \(USA\)](#)  
**Subject:** [Non-DoD Source] Chehalis River Basin Flood Control Zone District (NWS-2014-1118)  
**Date:** Monday, November 16, 2020 8:26:52 AM  
**Attachments:** [FOGH Comments Chehalis Basin NEPA DEIS 2020.pdf](#)

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Attached please find Friends of Grays Harbor (FOGH)'s comments on the above referenced project.

We believe that the NEPA review is inadequate and does not properly analyze the proposed project, nor offer valid alternatives.

Thank you in advance for your consideration of our concerns.

R.D.

Arthur (R.D.) Grunbaum, President  
FOGH (Friends of Grays Harbor)  
P.O. Box 1512, Westport, Washington 98595-1512  
[rd@olearycreek.com](mailto:rd@olearycreek.com)  
[rd@fogh.org](mailto:rd@fogh.org)  
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FOGH is a broad-based 100% volunteer tax-exempt 501(c)(3) citizens group made up of crabbers, fishers, oyster growers and caring citizens. The mission of FOGH is to foster and promote the economic, biological, and social uniqueness of Washington's estuaries and ocean coastal environments. The goal of FOGH is to protect the natural environment, human health and safety in Grays Harbor and vicinity through science, advocacy, law, activism and empowerment. Your tax-deductible contribution can help FOGH maintain the quality of Central and Southwest Washington's coastal environment.





November 16, 2020

US Army Corps of Engineers, Seattle District  
PO Box 3755  
Seattle, Washington 98124-3755  
Attn: Brandon Clinton, Project Manager  
Brandon.C.Clinton@usace.army.mil

NEPA Draft EIS for the Chehalis Flood Damage Reduction Project  
c/o Anchor QEA  
1201 3rd Avenue, Suite 2600  
Seattle, Washington 98101

Via email: Chehalis@usace.army.mil

In Re: Chehalis River Basin Flood Control Zone District (NWS-2014-1118)

Dear Reviewers:

Thank you for the opportunity to participate in the outcome on the Chehalis River Basin Flood Damage Reduction Project - NEPA Environmental Impact Statement. We appreciate that this is a very complex proposal that has spanned decades in its search for a result that will benefit the environment, visitors and residents of the Chehalis Basin Watershed.

Friends of Grays Harbor (FOGH) is a broad-based 100% volunteer tax-exempt 501(c)(3) citizens group made up of crabbers, fishers, oyster growers and caring citizens. The mission of FOGH is to foster and promote the economic, biological, and social uniqueness of Washington's estuaries and ocean coastal environments. The goal of FOGH is to protect the natural environment, human health and safety in Grays Harbor and vicinity through science, advocacy, law, activism and empowerment.

We incorporate by reference comments submitted by the Quinault Indian Nation, the Confederated Tribes of the Chehalis Reservation, Audubon Washington, Grays Harbor Audubon Society, Citizens for a Clean Harbor, Twin Harbors Waterkeeper, Earth Ministry, Wild Salmon Center, Conservation Northwest, South Sound Sierra Club, Center of Biological Diversity, Washington League of Women Voters, American White Water, Orca Network, Orca Conservancy, Pacific Rivers, Coast Salmon Partnership, Wild Fish Conservancy, and Wild Steelhead Coalition.

As we have commented before, the Chehalis basin drains 2,660 square miles and is broken into two separate WIRAs, the upper 23 and lower 22, which empty into the Grays Harbor Estuary and the Pacific Ocean. It goes without saying that what happens upstream affects the ecology of those waters downstream. As a result the water-quality, water-quantity and timing of flow are of significant importance to the health and economic vitality of the region.

We are concerned that consideration is given to any sort of dam or water retention configuration and strongly oppose that as a solution, partial or in whole. Dams have proven to be destructive to salmon and Steelhead runs and present unintended consequences that cannot be mitigated. As Mark Cedergreen, former CEO of the Westport Charter Boat Association and advisor to the Pacific States Marine Fisheries Commission stated, referring to the salmon run on the Columbia River, "...its production today [is] about 10-15 percent of what it was pre-dam." The Chehalis River runs are smaller to begin with and they cannot suffer a decline from their present levels.

Regional Native American tribes, e.g., Quinault Indian Nation, Confederated Tribes of the Chehalis and Shoalwater Bay Tribe depend upon the delicate balance that nature provides to sustain their culture and sustenance. The natural flow of waters during flood events depends upon healthy and natural storage of wetlands and riparian areas. The data for "cooling" water temperatures as described in the permanent reservoir scheme is flawed. At most the cool

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<http://fogh.org> [rd@fogh.org](mailto:rd@fogh.org) [linda@fogh.org](mailto:linda@fogh.org) 501(c)(3) tax-deductible

water would be available for about one mile downstream of the dam. Beyond that point the water temperature would increase the further it travels downstream along the agricultural lands that lack adequate riparian zones. Any interruption of this natural process only exacerbates problems elsewhere - usually downstream.

A comprehensive review of all zoning law and local SMPs (Shoreline Master Programs), exemptions and variances shows that significant variance in and around the basin drainage area must be made. Stringent prohibitions must be made to filling or modifying wetlands and riparian areas. Mitigation for projects should NOT be allowed out of area or kind. If a proposed project would jeopardize existing functions and values then it should not go forward.

The discussion of alternatives has been called the “heart of the environmental impact statement.” 40 C.F.R. § 1502.14 (1992). To be reasonable, an alternative has to respond to the Purpose and Need, it has to be technically and economically feasible, needs to be consistent with the basic policy objectives for management of the area -- normally we interpret this to mean it’s in conformance with the land use plan -- its implementation must not be remote or speculative, and it must not be substantially similar in design and effects to an alternative that is already analyzed. *Bureau of Land Management, U.S. Department of the Interior*. How does the analysis of a smaller footprint alternative dam satisfy the requirement of providing an alternative to the “preferred” dam? Does a dam conform with existing land use policies of the area?

It appears that the analysis of “significant adverse”, “cumulative adverse”, “significant adverse”, and “adverse consequences” has been limited to narrow topics and therefore under valued in the more holistic review of the long term impacts. Why have concerns not be studied basin-wide? What would be the economic, social impacts to the rest of the basin of the listing of one or more species as the result of the dam, especially fishers and crabbers?

We are concerned that there has been a woefully inadequate analysis of greenhouse gasses (GHG) and in particular the greenhouse flux, due to the flooding of the landscape. Following flooding of landscapes to create any kind of reservoir, terrestrial plants die and no longer assimilate carbon dioxide (CO<sub>2</sub>) by photosynthesis, thereby resulting in a loss of a sink for atmospheric CO<sub>2</sub>. In addition, bacteria decompose the organic carbon that was stored in plants and soils, converting it to CO<sub>2</sub> and methane (CH<sub>4</sub>). What are the expected GHG emissions of the reservoir once it has been flooded? What is the effect of decomposition and greenhouse flux when a system is inundated, drained, and inundated again over the expected time lines?

According to the DEIS, the removal of trees would promote the spread of invasive vegetation and “increase the chance for invasive species to colonize the area.” What native vegetation would survive under total inundation for upwards of one month or longer? What would be the cost of the initial invasive cleansing of the reservoir area, and what would be the cost and time period of subsequent “repairs” after each future event? Would herbicides be considered? Why has the applicant significantly undervalued and undercounted the wetlands that would be impacted? Why have off-site connections between wetlands not be delineated?

We note that the basin is described as Forestland making up approximately 84 - 87% of the WRIAs. Considerable data has been collected and various reports have shown that large trees have a greater water storage capacity relative to water use than smaller trees. We encourage that forest practices need to be enforced and special consideration should be given to the critical areas that lie within those permitted areas. Perhaps the cut cycle of the forest practices should be studied and a calculation used to determine the effects of water storage in trees if the cycle is increased to 80-years from its current level.

We concur that dredging-style practices will negatively impact and dramatically affect flooding in the lower main stem and downstream cities. Actions that speed drainage from the upper WRIA will interfere with and potentially overwhelm the rivers; streams and other tributaries as they begin their own natural drainage system of storm generated waters.

The mitigation is inadequate, relying primarily upon wetland preservation even though the wetlands to be “preserved” are protected from development under existing laws.



In summary, the DEIS did not properly address or mitigate:

*Problems with dam proposal:*

1. Would not protect I-5 nor other flood-prone areas under most flood events
2. Highest risk for damage to ecological functions – salmon, Steelhead and other species
3. Highest cost of all proposed projects. Cost-benefit not detailed or analyzed
4. Limited federal funding for new large scale projects like water retention
5. Project design is still in early phase and cost estimates may change significantly
6. Need for significant additional technical and design work if the project moves forward, including for fish passage facilities which state trap and truck, but the reservoir eliminates historical spawning areas.
7. Process for approval and construction of a dam can take 8–15+ years, with many opportunities for challenge by opponents
8. Damming rivers is the most expensive, most damaging alternative and should not be considered. The analysis of cost does not properly capture actual cost-overruns, which according to a recent Australian study, can exceed 75% of projected costs. What would be the cost and maintenance of an elevated I-5 corridor, compared to the dam?
9. The proposed dam is reported to hold 65,000 acre-feet of water that converts to approximately 21.18 Billion gallons of water at an approximate weight of 176, 223,681,920 pounds. What would be the energy extent of damage caused the release of 176.2 billion pounds? The life span of the proposed project is listed as 50 years. What would be the likelihood of a 6.0 or greater earthquake in this area during this time period. Could Pe Ell survive a sudden release of this energy?
10. The 404(b)(1) criteria are not met and fail to adequately and accurately identify impacts.

*Problems with levees:*

1. Levees would increase flooding in other areas, and create similar process to end cut erosion
2. One proposal for levees would only provide I-5 and airport with protection - not a basin-wide solution.
3. Levee proposal for Twin Cities –same concerns as above – increase flooding in other areas; not basin-wide solution.

*Alternatives*

1. What is the financial relationship between the Chehalis Basin Strategy and the Aberdeen/Hoquiam levees? Are these projects independent of each other? If a dam were built, who would own the dam?
2. You do not include complete financial analysis for any of the alternatives. Therefore, your cost-benefit analyses are incomplete and no decisions can be reached based on this data.
3. Why is there is no analysis of the impact of forest practices on flood events? Poor forest practices can cause or exacerbate flooding and improvements need to be included in these studies.
4. The table below summaries the contribution of the Maritime industry as measured in 2015. What would be the cost and impact to this industry and the individuals if an ESA listing was placed on the Chehalis River for Spring Chinook and certain Steelhead populations associated with the location of the dam. What would be the cumulative effect of the loss of those jobs and the “trickle down” of their impacts to human, wildlife, and ecosystem indicators?

In 2015, Washington’s Maritime industry supported 69,500 jobs, \$4.7 billion in wages, and \$21.4 billion in business revenue. Exhibit E-1. Maritime Sector Employment, Revenue, and Wages by Subsector, 2015

Category	Employment	Wages (Millions)	Revenue (Millions)
Commercial Fishing and Seafood Products	15,900	\$1,075	\$9,428
Maritime Logistics and Shipping	22,200	\$1,479	\$5,212
Maritime Support Services	8,000	\$569	\$3,942
Recreational Boating and Boat Building	4,000	\$169	\$1,561
Shipbuilding, Repair and Maintenance	17,000	\$1,226	\$900
Passenger Water Transportation	2,300	\$138	\$394
Total	69,500	\$4,656	\$21,436

Sources: Washington State Employment Security Department, 2016; United States Census Bureau, 2014; Washington State Department of Revenue, 2016; Community Attributes Inc., 2016

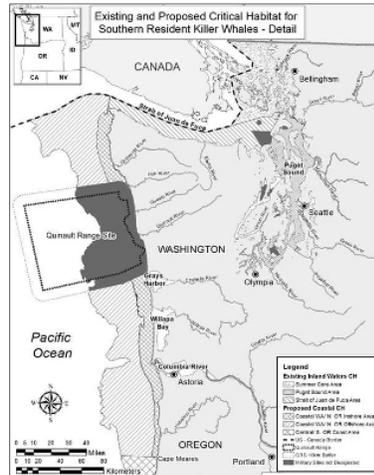


As habitat is lost and more impervious surface is permitted in and around the watersheds of Western Washington, the stocks of salmon on the Coast of Washington have become even more critical to the already listed, Orca or Killer Whales of Puget Sound. Members of L pod of Southern Resident Killer Whales were seen off the coast near Westport as recent as February 13, 2018 and have been noted to feed on Columbia River and Chehalis Basin salmon.

Orca siting map



Orca Critical Habitat



*In Summary*

1. Damming rivers is the most expensive, most damaging alternative and should not be considered.
2. Building any type of dam is in violation of tribal treaties and will negatively impact usual and customary fishing rights.
3. A dam on the Upper Chehalis will not impact most flooding that occurs from rivers below the dam site. How effective would it be for preventing flooding in much of the basin?
4. A dam presents the highest risk for damage to ecological functions – salmon, Steelhead, wildlife, invertebrates and other dependant species, including humans.
5. The geomorphology of the site is highly unstable and the potential for catastrophic failure is high and needs further modeling to weigh the impacts of a possible destruction on the civilian population.
6. Sequencing of the water flow of tributaries flowing into the Chehalis River needs to be analyzed for potential bank erosion and scouring.

At present we cannot support and vehemently oppose any retention solutions. We suggest that the DEIS is flawed in its considerations and must be supplemented with additional studies that result in “softer” and more reasoned alternative solutions that take into consideration the entire ecosystem of the watershed.

Sincerely,

Arthur (R.D.) Grunbaum  
President



**From:** [Sophia Ressler](#)  
**To:** [Chehalis](#)  
**Subject:** [Non-DoD Source] Chehalis Flood Reduction Project NEPA DEIS Comments  
**Date:** Tuesday, November 17, 2020 2:36:13 PM  
**Attachments:** [NEPA DEIS Comments - Chehalis Dam FINAL.pdf](#)

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Good Afternoon,

Please find attached the Center for Biological Diversity's comments on the NEPA DEIS for the Chehalis River Basin Flood Damage Reduction Project.

Best,

Sophia Ressler  
(she/her/hers)  
Washington Wildlife Advocate, Staff Attorney  
Center for Biological Diversity  
office: (206)900-7953  
cell: (206)399-4004

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*Submitted via electronic mail to chehalis@usace.army.mil*

Brandon Clinton  
Corps EIS Project Manager  
United States Army Corps of Engineers

Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, OR 97219

RE: Center for Biological Diversity Comments on NEPA Draft Environmental Impact Statement for the Chehalis River Basin Flood Damage Reduction Project

November 17, 2020

Dear Mr. Clinton and Anchor QEA,

These comments are sent on behalf of the Center for Biological Diversity (“Center”) and our 1.7 million members and supporters, over 40,000 of whom live in Washington state, to provide comments on the Draft Environmental Impact Statement (“DEIS”) for the proposed Chehalis River Basin Flood Damage Reduction Project (“project” or “dam project”).

The Center is a nonprofit, membership-based conservation organization dedicated to the protection of endangered species and their habitat. The Center works in the state of Washington on a range of issues including carnivore conservation, restoring the Southern Resident Killer Whale population and preserving habitat around the state to support healthy wildlife and ecosystems. The Center and our members are deeply concerned about the implications of building a dam on the Chehalis River and the effects that it would have on the environment.

This project proposal comes at a vital time for our wildlife and ecosystems. The unavoidable consequences of this project, as outlined in the DEIS, will impact species that are on the brink of extinction and threaten the ability of the region to adapt to climate change. Furthermore, the project fails to recognize the reality of our current state, which calls for resilience, creativity and adaptation and not the creation of more dams, which impact our environment in untoward ways and fail our communities.

After review of the DEIS the Center finds significant deficiencies that must be addressed to adhere to National Environmental Policy Act (“NEPA”) requirements and properly analyze project alternatives. The agency should prepare a supplemental DEIS that addresses the inadequacies outlined below and brings the DEIS into compliance with NEPA. The Center is opposed to the proposed project to build an

expandable control dam and levee and believes the NEPA analysis for this project is flawed for the reasons explained below.<sup>1</sup>

## **I. The DEIS Fails to Adequately Analyze the Impacts of Climate Change**

The Center appreciates the DEIS's acknowledgement that the proposed project will result in significant impacts to the environment. However, the DEIS fails to meaningfully analyze the impacts climate change will have related to the project or provide proper information or modeling on these impacts in the DEIS. While the DEIS does mention how the future of climate may cause uncertainty and impact the potential outcome of the project, the DEIS is completely lacking in an analysis of those issues. Unlike the State Environmental Policy Act ("SEPA") DEIS which included models showing precipitation and flooding increase due to climate change this DEIS does not include any such models or acknowledgement of these impacts. Failing to consider how climate change and the increase in flooding may increase impact to habitat, change the project footprint and effect future changes to the ecosystems is a complete failure of the DEIS. A proper analysis of these issues and others that may be impacted by the effects of climate change requires a much more robust analysis and for proper modeling to be considered.

Climate change is a reality that we must face head on as a society to plan around its effects and lessen the daily impacts that it will have on communities. The DEIS's failure to include proper analysis on this subject is a major flaw. A supplemental NEPA DEIS must be drafted that includes climate modeling to address the effects of climate change and address this major environmental factor.

## **II. The DEIS Fails to Adequately Consider the Project's Impacts on Wildlife and Habitat**

### *a. The DEIS Fails to Adequately Consider Impacts on Salmonids*

The Chehalis River Basin currently supports 31 salmonid stocks none of which are currently listed as threatened or endangered under the ESA.<sup>2</sup> However, salmon in the Chehalis Basin are in decline. Salmon runs in the basin have significantly declined due to habitat degradation, overfishing, unregulated timber harvest, destruction of wetlands, floodplains and tidal estuaries as well as development without the inclusion of adequate fish passage. Spring Chinook are estimated to be at 20% of what they once were historically, and other species numbers are estimated at less than 50%.<sup>3</sup>

The Chehalis River Basin supports spawning wild spring Chinook, fall Chinook, Coho and Steelhead and the introduction of a dam is likely to affect all four species. The DEIS states that proposed project would cause severe and unavoidable harm to the basin's coho, Chinook and steelhead. The project would reduce the genetic diversity of these populations and also will significantly alter important spawning habitat.<sup>4</sup> These consequences would be unavoidable even with potential mitigation considerations, and will not

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<sup>1</sup> This action is governed by the Council on Environmental Quality's 1978 regulations, as amended and as in force in 2019. Although CEQ issued a final rulemaking in July 2020 fundamentally rewriting those regulations, the new rules apply only "to any NEPA process begun after September 14, 2020," or where the agency has chosen to "apply the regulations in this subchapter to ongoing activities." 40 C.F.R. § 1506.13 (2020)." Because the project here was "begun" (through scoping) well before September 14, 2002, and because the Corps has not indicated it would apply the new regulations, the agency must comply with the 1978 regulations.

<sup>2</sup> Chehalis Basin Partnership, Fish in the Chehalis Basin. Available at <https://chehalisbasinpartnership.org/fish/> (last visited May 26, 2020).

<sup>3</sup> Chehalis Lead Entity, Salmon and the Chehalis Watershed. Available at [www.chehalisleadentity.org](http://www.chehalisleadentity.org) (last visited May 26, 2020).

<sup>4</sup> Ashcraft, S., C. Holt, M. Zimmerman, M. Scharpf, and N. Vanbuskirk. 2017. Final Report: Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2013-2017, FPT 17-12. Washington Department of Fish and Wildlife, Olympia, Washington.

only severely impact these populations, but will have impacts that reverberate far from the Chehalis River basin.

Furthermore, although Chinook in the Chehalis River are not yet listed as threatened or endangered under the ESA, their decline could very likely lead to a future listing, including potentially spring chinook, which are under consideration for protection further south in the Klamath Basin and on the Oregon Coast. Especially considering the impacts of climate change and other future development projects in the area that are likely to reduce their numbers even further by affecting things such as temperature and precipitation, and ground cover and increasing sedimentation in the river.<sup>5</sup> As part of a cumulative impacts analysis the DEIS must consider the likely future listing of Chinook under the ESA as well as the following cumulative impacts:

- The variability in freshwater survival of Chinook unrelated to the project.
- The variability in estuarine and marine survival of Chinook and the effects of climate change on marine survival.
- The impacts of harvest on Chinook.
- The effects on Chinook of increased abundance of exotic fish within the mainstream Chehalis River corridor.
- The impacts of hatchery fish on Chinook.
- The impacts of future salmonid harvest on Chinook.

The DEIS's failure to consider these cumulative impacts is a violation of NEPA and these must be explored to make a proper decision on the appropriate flood mitigation in the river basin.

*b. The DEIS Fails to Adequately Consider Impacts to Southern Resident Killer Whales*

The Southern Resident Killer Whales ("SRKWs" or "Southern Residents") are a critically endangered orca ecotype that relies almost exclusively on salmon as their prey. The species was listed under the ESA in 2005, but despite this important protection their numbers continue to decline. The population is currently at 74 whales, which is the lowest it has been in the last 40 years. Main threats to this population include lack of available prey, disturbance from vessel noise and toxic contamination from pollutants such as PCBs, DDT and PBDEs.<sup>6</sup>

All three pods that make up the SRKWs use the waters off the coast of Washington year-round targeting Chinook as their primary prey.<sup>7</sup> Data collected by the National Oceanic and Atmospheric Association ("NOAA") indicates that of the total time that the Southern Residents spend in coastal habitat during the year, over 50% of that time is spent off the coast of Washington.<sup>8</sup> Even though the Southern Residents continue to frequent this area, the decline of Chinook has had a disastrous effect on the SRKWs. In fact, a lack of prey availability is widely thought to be the number one limiting factor for the recovery of this

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<sup>5</sup> Chehalis Basin Strategy, Aquatic Species Restoration Plan, 2019, pp. 19-20.

<sup>6</sup>National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington.

<sup>7</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019.

<sup>8</sup> Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N00070.

species. In order to promote the recovery of this species it is absolutely necessary to ensure an abundant and consistent population of Chinook.

The DEIS mentions the adverse impacts to Southern Residents that this project will cause, but it fails to adequately consider the potential impacts of further decline in prey availability. The DEIS underestimates the effects of this project on the Chinook population and the effects that it will have on the SRKWs. Specifically, the DEIS fails to properly discuss the impacts that dam construction would have on Chinook habitat, how the dam would affect fish passage and what sort of impact further decrease in the Chinook population could have on the critically endangered Southern Residents. The Chinook in the Chehalis Basin are particularly important to the SRKW during the late winter and early spring. This project poses an additional risk to salmon that the SRKW simply cannot handle. Construction of this dam, which will cause further depletion of Chinook runs could be the end for the Southern Residents. The DEIS must meaningfully consider the effects of further prey depletion on the SRKW.

The Corps must also formally consult with the National Marine Fisheries Service, pursuant to Section 7 of the Endangered Species Act, on the potential impacts of this proposal on the SRKW and its habitat. 16 U.S.C. § 1536(a)(2).

*c. The DEIS Fails to Adequately Consider Impacts to Amphibian and Reptiles*

The plans to minimize the effects of the reservoir on amphibians do not properly consider the behavior and life history of the species. While the temporary reservoir inundation area may not be inundated with water at all times, that does not equate to temporary impacts as this inundation will completely alter the underlying habitat, likely making it unsuitable for most amphibians. Minimizing the effects of the recurring inundation on amphibians by improving habitat upstream of the reservoir to increase the upstream populations and maintain a source for recolonization to the temporary reservoir and other downstream areas is flawed.

The DEIS assumes these species would be capable of easily moving in and out of these areas, which is a false assumption for many amphibian species. Even if there was potential amphibian habitat available when the water recedes, most of the amphibian species in this area do not travel long distances and would not be able to simply move in and out of this area. For example, the Van Dyke's salamander is thought to have an extremely limited dispersal ability and one study found most of the salamanders moved less than 2 meters, and the furthest movement was 33 meters.<sup>9</sup> This concern is actually acknowledged in the DEIS, which acknowledges that species such as the Van Dyke's salamander, and Dunn's salamander cannot tolerate flooding of their terrestrial habitats even for short periods of time and do not have the ability to move to other habitats that would become isolated because of flooding. DEIS at 149.

Despite this recognition, the DEIS fails to meaningfully address this issue and doesn't provide any appropriate mitigation to deal with the habitat impacts that will result from the proposed project. This leaves species such as the Van Dyke's salamander and the Dunn's salamander in risk of injury or mortality if the proposed project is built without any proper mitigation in place.

If the habitat is potentially suitable when it is not fully inundated and animals are able to make their way to that habitat, the reservoir area may actually become a sink habitat for amphibians and other wildlife,

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<sup>9</sup> Olson, D.H. and Chrisafulli. 2014. Conservation Assessment for the Van Dyke's Salamander (*Plethodon vandykei*) U.S.D.A. Forest Service Region 6 and U.S.D.I. Bureau of Land Management.

resulting in further losses, as they likely would not be able to leave the area as soon as it starts to become inundated with water again.

The DEIS also fails to properly address impacts to amphibians and reptiles that are protected under the Endangered Species Act (“ESA”) or under consideration for ESA protection. The DEIS mentions and briefly discusses the federally threatened Oregon Spotted frog but does not provide any discussion of how the proposed action would avoid take of this species. The DEIS also fails to properly consider impacts to the Columbia torrent salamander and the western pond turtle, two species that are both state-protected and under consideration for federal Endangered Species Act protections. Given the possibility of these species gaining Endangered Species Act protections in the near future, the DEIS should consider potential impacts to these species as well as how they can avoid take of these species. Like the Van Dyke and Dunn’s salamanders, the Columbia torrent salamander is found in the footprint of the proposed reservoir, so this proposal will likely result in the loss of Columbia torrent salamander populations, as well as their habitat.

### **III. The Center Supports an Alternative that Will Reduce Flooding in the Chehalis River Basin Without Building a New Dam**

The DEIS does not include any non-dam alternative to the Flood Retention Expandable (“FRE”). The only alternative that is considered in the DEIS is a Flood Retention Only (“FRO”) alternative, which is essentially just a smaller version of the FRE project, but still includes a proposal to dam the river to prevent flooding. By only considering a damming alternative the DEIS both fails to comply with NEPA and completely fails to properly serve the interests of the communities that will be impacted by the proposed project. The DEIS must consider a non-dam alternative that focuses on local actions to prevent flooding in the area without damming the river and destroying wildlife and habitat. This not only will help to consider the wishes of both the Quinault and Chehalis tribes, but will better serve both the communities and ecosystems that live in the Chehalis Basin. A supplemental DEIS must be drafted that includes the required reasonable range of alternatives, including an alternative which considers actions that could provide the same services without damming the river.

As it currently stands, the No Action Alternative is the only appropriate option to preserve the Chehalis Basin and protect the wildlife, habitat and communities that rely on this area. The No Action Alternative will not succeed on its own, but will need local projects and support to be successful and prevent future flooding. As part of a No Action Alternative the work needs to be done to find solutions that prevent flood damage in the basin. With further exploration and implementation consideration could provide a solution for the flooding issues in the area.

A viable alternative should consider such things as; 1) not building in the floodplain and instead focusing any future development in areas not subject to flooding; 2) restoring the floodplain to increase flood storage capacity; 3) instigating local flood protection projects such as levees, pump stations and flood walls; 4) identification of erosion risks and potential buyouts for properties in areas where risk is high and unavoidable; 5) helping people move out of areas where they are at risk of flood damage by implementing flood plain buyouts; 6) flood proofing with structural actions such as raising structures; 7) agroforestry practices that create robust and diverse farms, which in turn reduce the risk of flooding; 8) land use management planning throughout the basin to improve aquatic habitat and reduce the risk of flooding.

An approach that considers and incorporates these sorts of viable alternatives will benefit the entire Chehalis Basin. Implementing a suite of local measures is the most impactful way to reduce harm caused by flooding while causing the least amount of environmental harm.

#### **IV. Conclusion**

In summary, the Center finds serious deficiencies within the DEIS in violation of NEPA that must be corrected by a supplemental DEIS before this process continues. However, the proposed project is not the solution to prevent flooding in the Chehalis Basin. Instead the No Action Alternative should be selected to prevent the construction of a dam on the Chehalis River, however local flood prevention actions must be further explored to reduce flooding impacts after selecting this alternative. This is the only way forward to properly reduce flooding in the area and avoid detrimental impacts to our ecosystems, wildlife and communities.

The Center stands with the Confederated Tribes of the Chehalis and the Quinault Indian Nation, who have used this land since time immemorial, in opposing the construction of this dam on the Chehalis River.

Thank you for considering our comments.

Sincerely,

A handwritten signature in blue ink that reads "Sophia Ressler". The signature is written in a cursive, flowing style.

Sophia Ressler  
Washington Wildlife Advocate/Staff Attorney

**From:** [Paul Moinester](#)  
**To:** [Chehalis](#)  
**Subject:** [Non-DoD Source] Chehalis Dam NEPA Comments  
**Date:** Tuesday, November 17, 2020 2:36:23 PM  
**Attachments:** [WSC Chehalis Dam NEPA Comments \(11-17-2020\).pdf](#)

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On behalf of the Wild Steelhead Coalition and its thousands of members, we are submitting these comments on the National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) for the Chehalis River Basin Flood Damage Reduction Project. Thank you for your consideration of our comments and for all of your work on this important issue.

All the best,

Paul



Brandon Clinton, Project Manager  
US Army Corps of Engineers  
Regulatory Branch  
Post Office Box 3755  
Seattle, WA 98124-3755

Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, Oregon 97219

November 17, 2020

RE: Wild Steelhead Coalition's comments on the Proposed Chehalis River Basin Flood Damage Reduction Project, Draft Environmental Impact Statement under National Environmental Policy Act; Application for a Department of the Army Permit, NWS-2014-1118

Dear Mr. Clinton and the Chehalis River Basin Flood Damage Reduction Project:

Thank you for the opportunity to provide comments on this important National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) for the Chehalis River Basin Flood Damage Reduction Project. The future of the Chehalis Basin's people, wild steelhead, and ecosystems is something our organization cares deeply about, and we are eager to find solutions to the basin's persistent flooding challenges that work for the watershed's communities and wildlife.

We are submitting these comments on behalf of the Wild Steelhead Coalition and the organization's thousands of members. The Wild Steelhead Coalition is a nonprofit organization that is dedicated to increasing the return of wild steelhead to the waters of the West Coast. The Chehalis River is of particular importance to our organization's members because while it lacks the fame and notoriety of Washington's more iconic rivers like the Skagit and Hoh, most years the Chehalis boasts a run of wild steelhead larger than any river in the state. As a result, this river is vital to the future of wild steelhead recovery and angling in Washington state.

Unfortunately, like many of its sister steelhead rivers, the Chehalis has been experiencing a steady decline of returning wild steelhead in recent years. As recently as 2004, the Chehalis had 19,000 wild winter steelhead return to its waters. However, the river's wild steelhead run numbers have since plummeted, and 2020 was the fourth year in a row - and the ninth in the last fifteen years - that the wild steelhead run has failed to meet escapement, which led to the fishery being shuttered this spring.

We believe that despite this dramatic decline, the Chehalis' wild steelhead and salmon numbers can rebound. However, we are concerned that the environmental review for the proposed expandable dam for the Chehalis River does not sufficiently address the substantial implications of this proposed project on the Chehalis' wild fish populations, wildlife, and ecosystem. As a result, we believe the DEIS fails to meet the fundamental requirements of NEPA and does not sufficiently examine the project to justify issuance of a Clean Water Act 404 permit.



Please accept the following comments from the Wild Steelhead Coalition on this critical NEPA DEIS for the proposed Chehalis River Basin Flood Damage Reduction Project:

Overall, we are concerned the DEIS does not sufficiently analyze some of the impacts associated with building and operating the Flood Retention Expandable (FRE) facility (or dam). That said, we still believe the document makes it abundantly clear that this proposed project would involve significant and potentially irreparable damage to natural systems and resources important to the Chehalis Basin community and citizens across Washington. We are particularly concerned about the inadequate analysis of the impacts of climate change to the Chehalis' fish, wildlife, wetlands, and flooding issues.

We are disappointed that the DEIS fails to model for likely changes to floods and hydrology that climate change will have on the environment. In order to make adequate assessments of natural system responses and the FRE's ability to reduce flooding in the future, the DEIS must analyze the impacts of climate change. Climate change is not separate from the impacts of any proposed flood mitigation project, but rather it is the day-to-day reality we all have to live with and society has to plan for.

Compared to the SEPA DEIS, the NEPA DEIS lacks findings for key resources due to the lack of future climate modeling. By omitting these models, the NEPA EIS fails to address and acknowledge potential future impacts of the project on communities, wild fish, wildlife, and ecosystems. Additionally, the lack of key climate impact information has resulted in the NEPA DEIS severely underestimating the hundreds of acres of habitat that will be lost to an ever-increasing inundation area. As a result, we recommend that a supplemental NEPA DEIS is drafted that includes sufficient climate modeling, as it is impossible to support a project that intentionally omits key environmental influences and the future efficacy of the proposed project.

It is problematic that the DEIS relies on a flawed analysis to examine the impacts to wild fish and habitat, which has resulted in an underreporting of the impacts. The DEIS relies on the same methods and models used in the SEPA DEIS to evaluate impacts of the FRE on four salmonid species (spring and fall Chinook, coho, and winter steelhead), but NEPA's assessment does not evaluate the impacts of future climate change, despite a clear recognition that climate change patterns are projected to negatively affect environmental conditions for salmonids. While the Wild Steelhead Coalition did not conduct our own analysis of the DEIS's examination of the FRE's impacts on wild fish populations, we support the findings of the Quinault Indian Nation that the DEIS presents several materially significant shortcomings in the quality of its review that must be rectified in a supplemental analysis.

We are also concerned with the insufficient analysis of the "expandable" aspect of the FRE facility and the absence of any linkage to the purpose and need statement of the potential for increasing the capacity and footprint of a larger dam. While we recognize that a new analysis and permitting process would be required to use the expandable capacity, it is a disservice to the public to propose a structure with additional capacity and not to conduct an upfront analysis of what the additional impacts would be. History has shown time and again that once a structure like this proposed dam is in place, the future is tilted substantially toward deciding to use the additional capacity. As a result, the DEIS should include an analysis of the additional impacts of expansion now as such segmentation of the review is disingenuous and calls into question whether the DEIS meets the requirements of NEPA.



For a project with such far-reaching implications on the public, both with regards to direct impacts and public cost implications, it is imperative that the public have a complete understanding of this project's downstream effects. Regrettably, the public is being left in the dark because the DEIS fails to appropriately examine the mitigation components of this project. We recognize that the NEPA approach is geared more on prevention than post-project recommendations, but it lessens the accuracy of the impact statements if the post-project mitigation efforts are complete unknowns.

Simply put, there is no way the public can have any understanding of what mitigation efforts will look like or have any confidence in the efficacy of these efforts based on the current analysis. The public should not be forced to evaluate a project if they do not have a complete picture of how the substantial environmental impacts of this flood reduction effort will be mitigated.

We also want to acknowledge the ongoing development of the non-FRE local actions alternative that is being pursued by the Chehalis Basin Board and the failure of NEPA to consider true alternatives. While the NEPA process initially considered over fifty alternatives to the FRE, it only offers the Flood Retention Only (FRO) as an alternative, which is essentially a smaller version of the FRE. Not providing a true alternative is another failure of this NEPA process and a disservice to the public.

We recognize that other avenues for addressing flooding have been studied and dismissed, but the trade-offs laid out in the DEIS appear to set up a lose-lose scenario where the public will not receive sufficient flood protection and will suffer substantial environmental losses. This lose-lose scenario is particularly problematic for the Chehalis and Quinault Tribes as well communities in the Chehalis Basin that will not benefit from the proposed FRE but will bear the brunt of the FRE's substantial environmental destruction.

For all of these reasons, we therefore encourage the US Army Corps to conduct a more thorough environmental review that sufficiently examines how climate change will impact this project, communities in the basin, wild fish populations, and the watershed. Additionally, we strongly believe this supplemental analysis must consider the impacts of the expandable dam and whether mitigation for the identified damages is possible so that the public can truly have a comprehensive understanding of the long-term implications of this proposed project.

Thank you for your consideration,

Greg Topf  
Board of Directors  
Wild Steelhead Coalition

*The Wild Steelhead Coalition is a non-profit 501c(3) organization representing more than 3,000 members in Washington state and beyond. We were founded in 2000 by a group of conscientious steelhead anglers and advocates, determined to make lasting change for this iconic species. For nearly 20 years, the WSC has worked to build partnerships, educate stakeholders, and change policy on behalf of the fish.*

**From:** [Gregory Haller](#)  
**To:** [Chehalis](#)  
**Subject:** [Non-DoD Source] DEIS Comments on the Chehalis River Basin Flood Reduction Project  
**Date:** Tuesday, November 17, 2020 2:57:57 PM  
**Attachments:** [Comments on DEIS Chehalis Flood Damage Reduction Project.pdf](#)

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Hello,  
Please find attached the comments of Pacific Rivers on the DEIS Chehalis River Basin Flood Reduction Project.

Regards,  
Greg

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PACIFIC RIVERS



Greg Haller,  
Executive Director  
Pacific Rivers

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Portland, OR 97214

Office: 503-228-3555, ext 205  
Cell: 208.790.4105



November 17, 2020

Brandon Clinton, Project Manager  
US Army Corps of Engineers  
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Post Office Box 3755  
Seattle, WA 98124-3755

Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, Oregon 97219

**RE Comments on NEPA DEIS for the Chehalis River Basin Flood Damage Reduction Project**

Dear Mr. Clinton and Chehalis River Basin Flood Damage Reduction Project:

Thank you for the opportunity to provide comments on the National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) for the Chehalis River Basin Flood Damage Reduction Project. The Chehalis River Basin Flood Control Zone District (“Applicant” or “FCZD”) seeks a Clean Water Act Section 404 dredge/fill permit from the United States Army Corps of Engineers (“Corps”) to build a Flood Retention Expandable structure (“FRE”) on the Chehalis River and to raise an existing levee at the Chehalis-Centralia Airport. These proposals constitute the preferred alternative upon which the Corps based its analysis. The proposed activities will result in fill of several acres of wetlands, regulated by the Corps as waters of the United States, which trigger the need for a 404 permit under the Clean Water Act (“CWA”). Public Notice No. NWS-2014-1118.

Pacific Rivers is a non-profit conservation organization based in Portland, Oregon, with staff located throughout the Pacific Northwest. We have been involved in protecting rivers and their watersheds, clean water, and wild salmon and steelhead populations since 1987. Our mission is to protect and restore the watershed ecosystems of the West to ensure river health, biodiversity and clean water for present and future generations. We have been recently involved in monitoring and research of spring Chinook population abundance throughout the Washington coast, and it is this work which has given us an additional interest in the proposed FRE and Flood Retention Only (FRO) facilities at issue in this DEIS.

**General Comments**

Pacific Rivers has significant concerns with the proposed FRE and with the analysis undertaken by the Corps of the project effects. The Chehalis River basin is one of the most important salmon river systems in Washington. And the citizens of Washington have made a significant investment in salmon recovery because the basin offers one of the best opportunities to increase salmon abundance, restore river health, and design communities that are flood resilient.

In the DEIS, the Corps correctly predicts direct and significant adverse impacts of building and operating the FRE to fish, wildlife, wetlands, water quality, and cultural resources. For example, the Corps notes, “Trend modeling showed that, by mid-century, operation of the FRE facility would reduce the spring-run Chinook salmon population to fewer than 20 fish, putting it at risk for permanent loss in this area. Other fish, like lamprey, that spawn and rear around the FRE facility would also likely experience declines...” (DEIS p. 132), and “[b]ecause the future status of aquatic resources in the study area is expected to worsen, impacts from Alternative 1 would contribute to cumulatively substantial adverse impacts to aquatic species and habitats.” (DEIS p. 253). Additionally, Southern Resident Killer Whales (SRKW) rely on Chehalis River Chinook and other anadromous salmonids for their diet. The FRE’s impact on salmon will in turn impact the health and recovery of the remaining SRKW population, which is listed as an endangered population under the Endangered Species Act. The identification of severe impacts such as these render the project incompatible with the restoration of the Chehalis River ecosystem, and the needs of communities that want both salmon recovery and reduced flood risk.

The DEIS fails to model the predicted effects of climate change on the environment within the project area. The Corps must analyze and model the impacts of climate change in order to make adequate assessments of natural system responses and the FRE’s ability to reduce flooding in the future.

Pacific Rivers will demonstrate that the Corps of Engineers has not adequately performed its obligations and responsibilities under the NEPA. The DEIS is deficient because it does not conform to the statutory mandates of NEPA. First, the Corps has not properly considered a “reasonable range” of alternatives to the proposed project, and the method by which it disqualified consideration of alternatives was fundamentally flawed. Second, the DEIS does not give sufficient consideration to the water quality impacts of the project, both temporary and permanent. The projections of the Corps are unreasonably vague, particularly in comparison to the Washington Department of Ecology’s State Environmental Policy Act DEIS, which contains significantly greater specificity about water quality impacts. Considering that the review process was collaborative, the Corps had full access to the data and had a statutory mandate to consider those impacts. Third, the costs of the project are excessive and likely to be overrun, while the benefits are modest and of limited value in a typical year. The Corps should have conducted a public cost-benefit analysis for such an expensive, large-scale, and controversial taxpayer-funded project.

## **Alternatives Analysis**

NEPA requires that a federal agency take a “hard look” at any potential impacts of a federal agency action to determine whether they will have an impact on the human environment. Although Courts have declined to require a minimum number of alternatives, the statute states that agencies must consider a “reasonable range” of alternatives to the proposed action. Here, the proposed project is projected to cause significant, lasting impacts such as those identified in the DEIS in Table ES-1, which highlights 12 impacts which could be “high adverse impacts” from the operations of the FRE or FRO, in addition to even more severe impacts from the construction phase of the project. Many of these impacts overlap (for example, “high adverse impacts” on “coho salmon, spring- and fall-run salmon, steelhead”), meaning that the impacts of the construction will not be repaired, and instead the habitat will be continually degraded. Additionally, the Corps of Engineers has failed to adequately explain why the Local Actions Alternative discussed in the Washington Department of Ecology’s State Environmental Policy Act (SEPA) DEIS was not considered as a reasonable alternative. Where such high adverse impacts are projected without adequate levels of planned mitigation, it is unreasonable to consider only the action and non-action alternatives.

Whether an agency has considered a “reasonable range” of alternatives is determined with reference to the purpose of and the need for the proposed project. The need for flood prevention actions is a central aspect of the Chehalis Basin Strategy. The proposed project’s stated purpose is to “reduce the risk of flood damage in the Chehalis/Centralia area from catastrophic flooding.” (DEIS p. 11). A catastrophic flood has been defined for purposes of this EIS as a 100-year flood, which has an approximately 1% chance of happening each year. Therefore, this project is designed to provide the purported benefit to the public only once every 100 years. Table ES-1 identifies 12 “beneficial impacts” of the project; 10 of these impacts are “reduced downstream flood damage”, or a variation thereof (the others are government revenues and income and employment, both of which are listed as being partially impacts due to reduced flood damage). According to the Corps, then, the primary and planned beneficial impacts of this project are to be necessary once every hundred years, while the negative impacts will be felt one hundred out of every one hundred years. Where such minimal and limited benefits are projected, it is unreasonable to consider only the action and non-action alternatives.

Further, the purpose of the project has been narrowly defined in such a way as to make consideration of alternatives less feasible. By concentrating solely on catastrophic flooding, the Corps has artificially precluded consideration of incremental, cumulative actions such as those proposed in the SEPA Local Actions Alternative, and has failed to take into account the potential beneficial impacts of local action alternatives generally on mitigating the damage from catastrophic, 100-year floods. Instead, the Corps has placed blinders on its inquiry, enabling it to whittle down a list of as many as 60 alternatives to just three, and no non-construction alternative. The SEPA DEIS, on the other hand, states that the project will store floodwater during “major or larger floods.” This definition of the project’s purpose resulted in the State of Washington’s proper consideration of the Local Actions Alternative. A project’s purpose should be sufficiently broad to enable the consideration of creative and effective alternative solutions.

The Corps’ DEIS presents two alternative projects, the FRE and the FRO facilities. However, the DEIS makes clear that the FRE and the FRO facilities have identical impacts during the construction phase, because they have an identical construction footprint. The difference identified by the DEIS is that the FRE is a facility which can be expanded in the future, while the FRO is not. While we recognize that any future expansion of the FRE facility would face a separate permitting process, apportionment of the NEPA process into multiple, discrete projects is inappropriate where the essential purpose and need of the projects is identical: reducing downstream flood damage from catastrophic floods. Analysis of the impacts of the proposed expansion to the FRE facility is necessary in order to complete the NEPA analysis, because it is clearly “reasonably foreseeable” that a facility which is designed to be expanded, might be expanded. In *Thomas v. Peterson*, the Supreme Court stated, “the purpose [of the NEPA process] cannot be fully served if consideration of the cumulative effects of successive, interdependent steps is delayed until the first step has already been taken.” The Corps must provide an analysis of the foreseeable adverse impacts of the expanded FRE facility in order to complete the NEPA process.

### **Water Quality Impacts and Appropriations**

The DEIS identifies five categories of regulated water quality impacts that could be caused by the construction and operation of the proposed project: temperature, dissolved oxygen, turbidity, excess nutrients, and chlorophyll A. Each of these water pollutants is subject to regulation by the State of Washington under §401 of the Clean Water Act, which authorizes states to certify and regulate water quality standards. The state issues Total Maximum Daily Load (TMDL) allocations for these and other pollutants, meant to keep levels low enough to minimize environmental damage and health risks. In order to be complete, the Corps’ NEPA analysis should contain specific and precise projections for the impacts of the proposed project. For

example, in the SEPA DEIS, the temperature impacts of the proposed project are meticulously predicted: “The increase would be as much as 5.4°F (3°C) in the reservoir area and immediately downstream and as much as 9°F (5°C) within the temporary reservoir at Crim Creek.” (SEPA DEIS p. 42). In the Corps’ DEIS, the temperature impacts are quantified quite differently: “...this loss of riparian shading could increase river temperature by as much as 2°C in the spring and summer.” The DEIS goes on to note that “[a]ny increase greater than 0.3°C in impaired sections of the river during this time of year would exceed the applicable criteria for salmonid protection.” Such a significant discrepancy between the SEPA and NEPA analyses begs for explanation in the text of the NEPA documents.

Of additional concern is the use of imprecise impact estimates. The DEIS indicates that the project will have “low to high adverse impacts” (DEIS p. 61) and “no to medium adverse impacts” (DEIS p. 56) on various aspects of water quality. These descriptions are too broad to have value in determining the probable impacts of the project. The best-case scenario is so far removed from the worst-case scenario that the prediction becomes meaningless. While an agency receives substantial deference with regard to its scientific expertise, this presumption is undermined here by the SEPA DEIS, which contains projections of greater specificity and does not make these overly broad predictions. The Washington Department of Ecology and the Corps of Engineers have repeatedly emphasized that the two analyses have been proceeding in a cooperative and collaborative manner. It is therefore unreasonable that the DEIS would not include precise data and predictions drawn from the state data which they have access to. The Corps should ensure that the best available scientific data is informing their decision-making, in accordance with NEPA’s statutory mandates.

We also note that both the SEPA and NEPA analysis acknowledge that the project area is already subject to water quality issues and regulatory limitations for the listed pollutants above, with both analyses specifically stating that the area is already periodically above the state’s limits for temperature, dissolved oxygen, and turbidity at times during the year. Impacts caused by temperature increases could be worsened by declines in dissolved oxygen concentrations, which already do not meet state water quality criteria. NEPA’s requirement that an agency analyze the cumulative impacts of an action combined with past, present, and future actions is designed to inform an agency when their action, while perhaps not individually significant, may become the straw that breaks the camel’s back. Here, this risk is starkly presented: the TMDLs are already regularly being exceeded, and the project is projected to make these problems worse. The DEIS’s cumulative impacts analysis, however, gives virtually no consideration to this risk, only noting that the temperature increases would be “significant” (DEIS p. 251). Cumulative impacts analysis should not be an afterthought, but should instead be a serious and thorough analysis that takes the required “hard look” at the action’s impacts.

On a similar note, both the SEPA DEIS and NEPA DEIS analyses state that the project river, the Chehalis, already has significant low flow problems seasonally, and this problem will be exacerbated by the project, particularly during construction. Even if the Corps obtains water appropriation rights for the Chehalis River allowing an allocation of water, their rights will be junior to those of most current rights holders, particularly including the Chehalis Tribes. The DEIS has failed to adequately consider and address how conflicts will be resolved if the project causes low flows that interfere with rights-holders. The SEPA DEIS states that the Corps’ EIS analysis will include “assessing potential impacts of the Proposed Project on tribal resources, including potential impacts related to tribal sovereignty and treaty rights.” However, the Corps’ DEIS does not contain any expanded consideration of these questions. The Corps’ analysis is not complete without thorough consideration of these tribal rights and water appropriation rights.

### **Additional Comments**

The costs of this project are estimated to be in the range of \$625 million-\$1 billion, and cost overruns in Corps of Engineers dam construction projects are common. For example, a congressional report from the United States Government Accountability Office was commissioned in February 2017 to look into the Olmsted Locks and Dam Project on the Ohio River, which was planned to be completed in 2006 for a cost of \$775 million. The Corps was requesting an extension of the construction period to 2024, and an increase of the budget to \$2.918 billion. Many such examples can be found throughout the administrative record, and show that the Corps regularly allows lengthy construction delays to occur, necessitating further appropriations of taxpayer money to complete their projects. Additionally, the benefits of the project are modest at best, and at worst do not even fulfill the project's stated purpose. For example, the Corps' note at the end of Table 4.1-5, on p. 57 of the DEIS, confirms that of the four flood elevation reduction metrics that the Corps planned the project to address, one is not met by the project, and one is "most likely" to be met. In most areas, the maximum possible benefit of the project is a reduction in flood levels of around two feet during catastrophic flooding, and a reduction in I-5 closure times during those 100-year floods. Furthermore, the Corps' analysis is incomplete. The SEPA DEIS, which included future climate predictions, showed that in future years the project would be less effective at protecting structures, and provide less flood damage reduction, than the NEPA DEIS stated. The NEPA DEIS is inadequate and incomplete without future climate modeling.

Given these uncertainties in both the costs and the benefits of this project, and the significant expense of the project, the Corps should not proceed without conducting a thorough cost-benefit analysis to determine whether the project is in the public interest. The most important aspects of the NEPA process are that the agency provide the public with the best possible information in order to appraise them of the pros and cons of a proposed project, and that the agency itself use that information, in combination with public comments and the concurrent work of other agencies, to inform its decision-making. The Corps' analysis eliminates many alternatives from consideration on account of their cost, or claims that local mitigation actions that are already being performed in the project area are not "feasible" for the agency to carry out. Further, the Corps does not provide a list of the alternatives it evaluated, meaning there is no basis in the record for concluding that its method of comparing costs and benefits of various alternatives was sound. This issue is compounded by the Corps' decision not to engage in a detailed cost-benefit analysis of their own proposal.

In addition, the Corps has elected to include a levee repair project on the nearby airport in the DEIS analysis, despite the fact that the two projects are on separate project sites. Although the statute permits multiple actions in an area to be analyzed under the same EIS, this is not always appropriate. Here, the consolidation is questionable because the inclusion of the levee repair, which will require only minimal construction work and considerably less impact to hydrology and surface waters, enables the Corps to claim inflated benefits. The levee is the only aspect of the project expected to provide substantial flood prevention benefits to the airport area itself, and yet the overall benefits of the levee and the dam have been considered together in the DEIS, inflating the apparent attractiveness of the whole project. At minimum, the Corps should provide an explanation for its decision to omit separate consideration of the project with and without the levee repair, as well as consideration of the levee repair as a stand-alone alternative measure.

Finally, we note with approval the Corps' pledge to not burn cleared vegetation during construction of the project (DEIS p. 268), as the possibility of burning cleared vegetation was identified by the SEPA DEIS as the primary potential impact on air quality and largest contribution of the project in terms of carbon emissions. The commitment is an important step toward acknowledging the agency's responsibility in ensuring that the project does not contribute to global climate change. However, the agency has not fully performed this duty. Recent research has demonstrated that reservoirs, such as the one that would be built under the Corps

proposal, emit substantial quantities of methane gas. A 2016 paper, published in *Limnology and Oceanography* by Jake Beaulieu and featured on the EPA's blog in September of that year, explains this problem and highlights the fact that monitoring these methane emissions is an obligation of the United States under the Paris Agreement. Methane is one of the most potent greenhouse gases on Earth, and is a major contributor to global climate change. While the difficulty of modeling the potential damage caused by these methane emissions is profound, this difficulty does not discharge the Corps of the responsibility to identify such a reasonably foreseeable source of harm to the human environment. The Corps must quantify the future emissions of methane gas from its proposed reservoir project in order to comply with its statutory mandate.

Thank you again for the opportunity to provide these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Gregory Haller", with a long horizontal flourish extending to the right.

Gregory Haller  
Executive Director

**From:** [Raelene Gold](#)  
**To:** [Chehalis](#)  
**Subject:** [Non-DoD Source] LWVWA Comments on NEPA EIS on Chehalis R Basin Flood Damage Reduction Project  
**Date:** Tuesday, November 17, 2020 3:43:08 PM  
**Attachments:** [Chehalis comments 2.docx](#)

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In the attachment, please find the LWVWA's comments on the NEPA EIS on the Chehalis River Basin Flood Damage Reduction Project.  
Raelene Gold  
LWVWA, River Issue Chair

Brandon Clinton, Project Manager  
US Army Corps of Engineers  
Regulatory Branch  
Post Office Box 3755  
Seattle, WA 98124-3755

c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, Oregon 97219

NEPA EIS for Chehalis Flood Damage Reduction Project  
November 17, 2020  
Comments on Chehalis River Basin Flood Reduction Plan NEPA DEIS  
from the **League of Women Voters of Washington**

The League of Women Voters of Washington has serious concerns regarding the inadequacy of the Chehalis Flood Damage Reduction Project for a proposed expandable dam on the Chehalis River at Pe Ell in Lewis County:

1. The EIS is currently totally inadequate to not include an analysis of the available current and projected effects of climate change on the area, especially regarding precipitation and flooding, temperature increases and sea level rise. Addressing climate change impacts is a priority for the LWVWA.

2. The EIS lacks another alternatives to the retraction dam is a major omission in the EIS, especially as other proposals such as you mention the Local Actions evaluations included flood proofing, protecting critical infrastructure, flood plain protection and modifying construction standards. Washington State Governor Inslee demanded the alternatives to the retraction dam be included in the SEPA EIS. We suggest you develop a comprehensive flood resilience plan for the entire Chehalis basin that does not cause such damage to salmon and steelhead as this proposed dam. You should utilize the natural ecological functions of the floodplain, including the natural storage of rain performed by forests and wetlands. More development in the floodplain should be prohibited, and the structures at risk of flooding should be flood proofed or removed and relocated.

3. The impact on the Quinault Indian Nation, and the Chehalis is insufficient. The Quinault Indian Nation is a signatory to the 1856 Olympia Treaty executed by Issac Stevens which reserved to the tribe fishing rights in their usual and accustomed places, as well as gathering and harvesting rights. The entire Chehalis River Basin was their usual and accustomed places. The Bolt decision and the Shellfish case further extended these rights, which are essential to the health, diet, culture and religion of the Quinault. Impact to these treaty rights and access must be considered fully in each Alternative. The LWVWA supports the recognition of Treaties between the United States and tribal governments and the state's responsibility to enhance salmon by protection fish habitat.

3. We have concerns about the damage caused by the construction of the flood retention facility, as well as the large scale tree clearing of 485 acres for the temporary reservoir area. The trees naturally retain water preventing fast run off and well as protecting the stream salmon spawning areas. Construction lasting 5 years will cause disturbance for wildlife and increased sediment in the river impacting water quality and migrating spring chinook and steelhead survival. The reservoir behind the dam would destroy 12 miles of the river's riparian habitat, eliminating fish spawning areas, as well as elevate water temperatures killing fish. The

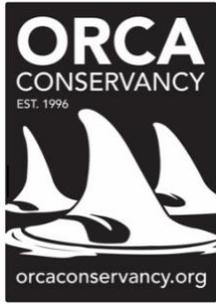
associated forests would also be destroyed, further raising water temperatures and enhancing flooding.

4. In your Socioeconomic section, you don't reconcile the costs of construction and profits for stumpage for Alternative 1 or 2 with the current state of the Washington State revenue projections. Also the your construction costs are much higher than the \$628 million stated in the SEPA EIS. In the 2020 Legislative session, a bill to fund the Chehalis with general obligation bonds was passed. HR 1154, an Act relating to financing of Chehalis basin flood damage reduction and habitat restoration projects passed in the last legislative session, and in the final bill the decision over which projects and amounts of funding was given to the state legislators rather than the Office of the Chehalis.

Therefore, the League of Women Voters of Washington strongly supports the No Action Alternative and looks forward to a revised SEPA EIS with local option alternatives.

Thank you for the opportunity to share our comments.

Raelene Gold  
Lobby Team, Rivers Issue Chair  
League of Women Voters of Washington  
[rgold@lwvwa.org](mailto:rgold@lwvwa.org)  
206-303-7218



November 15, 2020

Sent electronically via [chehalis@usace.army.mil](mailto:chehalis@usace.army.mil)

Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street  
Suite 125  
Portland, Oregon 97219

RE: National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) | Chehalis River Basin Flood Damage Reduction Project | NWS-2014-1118

Dear Anchor QEA,

Thank you for the opportunity to comment on the National Environmental Policy Act (NEPA) Draft Environmental Impact Statement, Chehalis River Basin Flood Damage Reduction Project | NWS-2014-1118. Please add the following comment(s), including our comment to the Department of Ecology dated May 26, 2020 (attached below), to the administrative record.

Orca Conservancy is a 501(c)3 Washington State non-profit organization, established in 1996, with the mission of working on behalf of *Orcinus orca*, the killer whale, and protecting the wild places on which it depends. Orca Conservancy currently represents over 40,000+ members and supporters, and collaborates with some of the world's top research institutions and environmental groups to address the most critical issues now facing wild orcas. The organization's urgent attention continues to focus on the remaining 74 members of the now critically endangered population of Southern Resident killer whales (SRKW).

The Chehalis River remains one of Washington's most important salmon (and steelhead) producing watershed in the state. The Chehalis Basin extends from hills south of Pe Ell to the southern end of the Olympic Peninsula, occupying huge chunks of Lewis, Thurston, and Grays Harbor counties. Its 2,700 square miles are veined with a network of 3,400 miles of rivers, streams, and creeks that all contain numerous salmon spawning areas. The Chehalis and its tributaries provide spawning habitat for some of the only wild salmon runs in the state that are not protected under the Endangered Species Act (ESA), for now. The Chehalis watershed, while an important food source for SRKWs, is also home to The Chehalis Tribe and the Quinault Indian Nation, as well as many vibrant small communities and some of the most productive agricultural land in the state. Historically, when European settlers first came to the Chehalis Basin, we ignored the sage advice

of the indigenous peoples that have called this land home for thousands of years. We were warned to not build in the floodplain, but we chose to do so anyway leading to our current dire situation.

Several laws specifically regulate activities that could result in pollution, toxic spills, or degradation of prey habitat in the marine environment and attempt to reduce the risk of such events. These include the Clean Water Act<sup>1</sup>; the Marine Protection, Research, and Sanctuaries Act<sup>2</sup>; and the Coastal Zone Management Act<sup>3</sup>.

### **Southern Resident killer whales**

On November 18, 2005, after evaluating the five listing factors of the Endangered Species Act, 16 U.S.C. §§ 1531-1544, the National Marine Fisheries Service (NMFS) issued a final ruling listing the Southern Resident Killer Whales (SRKW), a distinct population segment (DPS), as endangered under the Act. The SRKW population is comprised of three pods (identified as J-, K-, and L- pods) and is arguably the most familiar killer whale population to the public. They are found primarily in the Georgia Basin and Puget Sound from late spring to fall, when they typically comprise the majority of killer whales found in Washington. The population travels more extensively during other times of the year to sites as far north as the Queen Charlotte Islands in British Columbia and as far south as Monterey Bay in California.<sup>4</sup> As NMFS recently acknowledged, “new information ... confirms that ... [S]outhern [R]esidents spend substantial time in coastal areas of Washington, Oregon and California and utilize salmon returns to these areas.”<sup>5</sup> These coastal waters are recognized as an essential foraging area for this critically endangered population in the winter and spring, and are currently under consideration to be designated as critical habitat for the SRKW.<sup>6</sup>

Southern Resident killer whales are dietary fish-specialists and depend on abundant populations of Chinook salmon for their survival, social cohesion, and reproductive success.<sup>7</sup> Experts anticipate that climate change and ocean acidification will contribute to further significant declines in regional salmon abundance during the coming decades, thus impeding Southern Resident recovery.<sup>8</sup>

After over a decade of federal protection, the SRKW population has yet to show signs of significant recovery, with 74 members total as of November 2020 – now **FOURTEEN** members fewer than when they were initially listed in 2005. Their survival remains in question and is far from guaranteed,<sup>9</sup> and the population growth needs to exceed 200 members to reach historical levels.<sup>10</sup>

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<sup>1</sup> 1972. Clean Water Act. <https://www.britannica.com/topic/Clean-Water-Act>

<sup>2</sup> 1972. Marine Protection, Research and Sanctuaries Act. Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service. <https://www.fws.gov/laws/lawsdigest/marprot.html>

<sup>3</sup> 1972. Coastal Zone Management Act. <https://coast.noaa.gov/czm/act/>

<sup>4</sup> Wiles, G. J. 2004. Washington State status report for the killer whale. Washington Department Fish and Wildlife, Olympia. 106 pp.

<sup>5</sup> Michael J. Ford, Nat'l Marine Fisheries Serv., Status Review Update of Southern Resident Killer Whales 26 (2013). In fact, evidence indicates that Southern Residents spend the majority of time in coastal and offshore waters. Cf. M. Bradley Hanson, et al., Assessing the Coastal Occurrence of Endangered Killer Whales Using Autonomous Passive Acoustic Recorders, 134 J. OF THE ACOUSTICAL SOC'Y OF AMERICA 3486, 3486 (2013) [hereinafter Coastal Occurrence] (explaining that “on average the whales occur in inland waters less than half of the days each year”)

<sup>6</sup> 12-Month Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment, 80 FR 9682, published 2/24/2015.

<sup>7</sup> Center for Biological Diversity, Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale (*Orcinus orca*) under the Endangered Species Act 5 (Jan. 16, 2014)

<sup>8</sup> See, e.g. Lisa G. Crozier et al., Predicting Differential Effects of Climate Change at the Population Level with Life-Cycle Models of Spring Chinook Salmon, 14 GLOBAL CHANGE BIOLOGY 236, 237, 247 (2008) (predicting that global warming and changing ocean conditions will lower survival and fertility among all populations of Pacific salmon (*Oncorhynchus* spp.))

<sup>9</sup> Olesiuk, P. F., M. A. Bigg and G. M. Ellis. 1990. Life history and population dynamics of resident killer whales (*Orcinus orca*) in the coastal waters of British Columbia and Washington State. Report of the International Whaling Commission (Special Issue 12):209–243. Estimates neonate mortality between 37-50%.

<sup>10</sup> Palo (1972) put forth a tentative estimate of 225- 300 whales for Puget Sound and the Georgia Basin in 1970 (Palo, G. J. 1972. Notes on the natural history of the killer whale *Orcinus orca* in Washington State. Murrelet 53:22-24)

Based on the natural history and behavior of the endangered SRKWs, it is imperative that prey species, specifically Chinook salmon, are of sufficient quality and quantity and are available to support not only individual growth, reproduction, and development, but to further encourage the overall growth of this population. Prey depletion is recognized as one of the major threats to the survival and recovery of the SRKW community, and rebuilding depleted salmon stocks is listed as a top priority for the population.<sup>11</sup> Orca Conservancy understands the main link between the dam and orca recovery comes down to how the dam would affect Chinook salmon.

Due to Orca Conservancy's focus on advocating for recovery to allow delisting of SRKWs under the Endangered Species Act (ESA), most of our findings with the DEIS were failures in representing the SRKWs properly and it falls short of making recovery efforts fully discussed within the ESA.

Congress enacted the ESA, in part, to provide a "means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...[and] a program for the conservation of such endangered species and threatened species."<sup>12</sup>

Section 2(c) of the ESA establishes that it is "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act."<sup>13</sup> The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."<sup>14</sup>

Similarly, Section 7(a)(1) of the ESA directs that federal agencies shall use their programs and authorities to conserve endangered and threatened species.<sup>15</sup> To fulfill the purposes of the ESA, Section 9 of the ESA prohibits any person, including any federal agency, from "taking" an endangered species without proper authorization.<sup>16</sup> The term "take" is statutorily defined broadly as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."<sup>17</sup> The definition of "harm" has been defined broadly by regulation as "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."<sup>18, 19</sup>

Additionally, Congress passed the Clean Water Act (CWA) to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," 33 U. S. C. §1251(a); see also PUD No. 1, 511 U. S., 700, 714, the "national goal" being to achieve "water quality which provides for the protection and propagation of fish,

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<sup>11</sup> National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington.

<sup>12</sup> 16 U.S.C. § 1531(b).

<sup>13</sup> Id. at § 1531(c)(1).

<sup>14</sup> Id. at § 1532(3).

<sup>15</sup> Id. at § 1536(a)(1).

<sup>16</sup> Id. at § 1538(a)(1)(B).

<sup>17</sup> Id. at § 1532(19).

<sup>18</sup> 50 C.F.R. § 222.102; see also *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687 (1995) (upholding same regulatory definition of harm in 50 C.F.R. § 17.3).

<sup>19</sup> 2018. Center for Biological Diversity and Wild Fish Conservancy's 60-day notice of intent to sue the U.S. Department of Commerce, the Secretary of Commerce, the National Marine Fisheries Service (also known as NOAA Fisheries), and the Northwest Regional Administrator for the National Marine Fisheries Service (collectively "NMFS") for violations of the Endangered Species Act (ESA), 16 U.S.C. §§ 1531, et seq.

shellfish, and wildlife and provides for recreation in and on the water.” 33 U. S. C. §1251(a)(2). Section 401 is a critical piece of the CWA which was specifically written to block or reduce environmental impacts from fossil fuel pipelines, hydroelectric and other dams, cooling water intakes, large commercial and housing developments, mining, dredging, and other destructive projects that require a federal license or permit.

Thirty years ago, in the landmark case *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, Washington State established that its § 401 certification authority reached *all* water quality impacts of federally permitted dams. The United States Supreme Court agreed with Washington that, under § 401, the existence of any discharge at a federally permitted dam gives Washington the authority to address *all* of that dam’s impacts to water quality. This includes temperature in the reservoirs, spill over the dams, total dissolved gas, and salmon migration. Despite a decline in salmon runs of 80% over the last 30 years, the Chehalis River Basin remains one of the most important producers of wild fish in Washington State and is one of the few places left in the state where no salmon species are currently listed as threatened or endangered

The DEIS fails to consider the effects of inbreeding on jeopardy to Distinct Population Segment (DPS) survival. Maintaining constant numbers will result in loss of genetic diversity and increased inbreeding, both of which reduces the likelihood of recovery. That is, a plan that does not contribute toward significantly increasing SRKW numbers results in *jeopardy*. In his ruling on the Maury Island gravel mine case, Judge Martinez noted that even small threats to an already endangered population were likely to result in jeopardy. Thus, this DEIS should conclude that the preferred alternative is likely to adversely affect SRKWs which will result in jeopardy to the DPS’ survival.

It is unfortunate that NEPA does not model future climate conditions in its analysis of how the proposed facility would fully and detrimentally impact the environment. It did, however, acknowledge that the environmental impacts of the facility could be worse given the impacts of climate change. The proposed dam would severely threaten this ecosystem and degrade critical fish and wildlife habitat, while not effectively controlling flooding.

Climate change will result in more frequent and intense flooding events and larger flood damage if immediate and sweeping actions are not taken. Taking climate change into account, water temperatures eventually would be raised by 9 degrees. With warmer temperatures anticipated during winter months, wintertime precipitation would shift from snow to rain in the higher elevations of the basin adding slope instability, resulting in increased potential for debris flows, mudflows, and landslide in the steeper portions of the Chehalis basin. In addition, 90 percent of trees in the area of the temporary reservoir, stretching more than 6 miles, would be removed. When the reservoir fills, it would flood 847 acres, killing more trees and vegetation. Construction also would eliminate salmon spawning areas, and reduce salmon survival, with significant impacts on spring and fall run chinook, Coho, steelhead, and other native fish including lamprey, according to the Department of Ecology (DOE).

As noted in the DEIS, these runs are supposed to decline 70% due to climate change, therefore making it clear that to recover the SRKWs, we need to ensure all steps are taken to recover Chinook runs by mitigating climate change, not by moving projects forward that contribute to climate change. Therefore, a 70% decline in Chinook numbers due to climate change would need to be offset to maintain the current status quo. Riparian habitat improvement must be expansive enough to not only offset future declines in marine survival, but

freshwater survival needs -- at minimum -- to at least double even if marine survival remained the same to allow delisting.

Downstream of the structure, water temperatures would be elevated and decreased oxygen levels would degrade water quality in the river for 20 miles. Spawning habitat would be eliminated and fish passage mortality increased. Therefore, decreased water quality and increased temperatures would result in significant and long-term impacts for spring-run and fall-run Chinook salmon, Coho salmon and steelhead. These impacts would be sustained after construction is finished. However, on the scale of the whole Chehalis Basin, the statement concluded that the impacts would be high for spring-run Chinook.

Spring Chinook are particularly important for Southern Resident killer whales (SRKWs) for the same reason Columbia River and Klamath River Spring Chinook are important. Spring Chinook migration timing occurs when SRKWs are pregnant and/or lactating and who heavily rely on Spring runs which are especially rich in fat and have the highest caloric value.

The environmental review only looks at one part of the strategy still in the making — the structure — and does not consider other flood reduction measures; mitigation for the dam; or a companion fish enhancement plan still to be determined, let alone evaluated.

Therefore, based on the modeling in the DEIS, the number of structures inundated during major flooding and catastrophic flood events by 2080 will remain incredibly high, even with the proposed dam. During flooding events, which are likely to happen in late fall and winter, about 500 acres of land could be underwater by the temporary reservoir for anywhere from 4 - 25 days, killing native species including Douglas firs, red alders, big leaf maples and western hemlocks. Additionally, operation of the facility could also reduce dissolved oxygen concentrations upstream and increase chlorophyll levels upstream. A 1,165-foot section of the Chehalis River would be rerouted during construction, and about 450 feet of the river would be permanently replaced by the retention facility, according to the statement. Mahaffey Creek would also need to be temporarily diverted during construction.

With an expected price tag of about \$1 billion, this proposed dam on the Chehalis River will be a huge burden on taxpayers and deliver only minimal benefits to a small portion of the basin in return.

These natural floodplains and riparian areas are not just a location for flood problems. They also perform some very valuable natural functions. Probably the most important natural function of the area's floodplains is to provide habitat for aquatic species. Unfortunately, aquatic species in the Chehalis River Basin are significantly diminished from their historic level. Salmon habitat in the Basin already is degraded by 44%–78%, depending on the species.<sup>20</sup>

Orca Conservancy appreciates all the time and energy placed into creating this NEPA DEIS. However, we strongly encourage the U.S. Army Corps of Engineers to stand back and reject permit approval until further notice. This is due, in part, to the EIS failing to paint a complete picture of the proposed project. Therefore, we need to look at actions and find alternatives that are environmentally-sensitive. Additionally, there is a dire need for an alternative plan to coincide with the goal of increasing fish habitat which focuses on recovery of

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<sup>20</sup> 2020. City of Chehalis. Natural Floodplain functions.

the critically endangered SRKW population while including a resilience to climate change. All of which must be brought forth as an objective.

Sincerely,



Shari Tarantino  
Executive Director



May 26, 2020

Sent electronically to: <https://chehalisbasinstrategy.com/eis/comment-form/>

Orca Conservancy • PO Box 16628 • Seattle, WA 98116

Chehalis River Basin Flood Damage Reduction Project EIS  
Anchor QEA  
1201 Third Ave., Suite 2600  
Seattle, WA 98101

RE: Proposed Chehalis River Basin Flood Damage Reduction Project Environmental Impact Statement

Dear:

Thank you for the opportunity to provide comments on the Proposed Chehalis River Basin Flood Damage Reduction Project (Project) draft Environmental Impact Statement (DEIS). Please accept as the official filing from Orca Conservancy the following letter:

Orca Conservancy wishes to thank the Department of Ecology (Ecology) for extending the comment period during the coronavirus pandemic. As you are well aware, restrictions on activities due to COVID-19 have been in place in Washington throughout the comment period and have severely limited opportunities to meet with colleagues efficiently and have hindered access to written materials in libraries that are not readily available online. We would also like to point out that this coronavirus pandemic is a direct result of human activity and their involvement towards the degradation of natural habitat.<sup>21</sup> Orca Conservancy opposes this Project as a direct form of blatant destruction of a vital and much needed ecosystem.

Orca Conservancy also wishes to note that we are appalled at the amount of habit degradation and destruction listed within the Project DEIS; the destruction of species unable to move to another location during construction and operations of this proposed Project; and the willful choice of not honoring treaties with the Confederate Tribes of the Chehalis and the Quinault Indian Nation who currently call the Chehalis River Basin home. That said, our comments will be limited to specific effects the Project will have on recovery efforts of the critically endangered Southern Resident killer whale (SRKWs) population and the potential for listing another salmonid *Evolutionarily Significant Unit* (ESU) on the ESA should this project move forward.

Orca Conservancy is a 501(c)(3) Washington State non-profit established in 1996 with the mission of working on behalf of *Orcinus orca*, the killer whale, and protecting the wild places on which it depends. The organization's urgent attention is on the remaining 72 members of the critically endangered SRKW population.<sup>22</sup> Orca Conservancy currently represents over 38,000+ members and supporters, and collaborates with some of the top research institutions and environmental groups in addressing the most critical issues facing wild killer whales.

Orca Conservancy takes issue with the Project DEIS' finding that, "*Construction and operation would also have a moderate adverse impact on Southern Resident killer whales.*"<sup>23</sup> Previous to this statement, it is noted that the Project will have a significant adverse impact upon Chinook salmon, the SRKWs preferred food. We are unclear how this interpretation was reached and believe that moving this Project forward will have a significant adverse effect on SRKWs as a Distinct Population Segment (DPS). This includes the Project's human destruction of yet another salmon run which, again, is not in best interest of the SRKWs. For species that are

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<sup>21</sup> 2020, Proceedings of the Royal Society B, <https://doi.org/10.1098/rspb.2019.2736>

<sup>22</sup> 2020. Center for Whale Research

<sup>23</sup> <https://fortress.wa.gov/ecy/publications/parts/2006002part1.pdf>

endangered due to exploitation, protecting a subset of the range can be sufficient to ensure survival of the species. However, for species endangered by habitat degradation alone, as is the case for SRKWs, bold changes are needed if we are truly committed to assisting with the survival of the SRKWs population. Meaning; mortality rates are closely correlated to coastwide Chinook abundance, and recent Chinook population crashes in the mid 1990s and late 2000s have resulted in significant losses to the SRKWs population.<sup>24</sup> SRKWs engage in all types of behavior throughout their range. While lactating, it is likely that mothers require 2-4 times more food than they do at other stages of their life cycle. This requires large, contiguous areas with elevated prey density (due to the mobile nature of their prey, there is temporal fluctuation in prey density at a given geographic location).

Due to our primary focus being on advocating for delisting of SRKWs under the ESA, the majority of our findings with the Project DEIS completely fails to represent the SRKWs properly and it falls short of making recovery efforts fully discussed within the ESA. Congress enacted the ESA, in part, to provide a “*means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...[and] a program for the conservation of such endangered species and threatened species.*”<sup>25</sup> Section 2(c) of the ESA establishes that it is the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.<sup>26</sup> The ESA defines “*conservation*” to mean “*the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.*”<sup>27</sup> Similarly, Section 7(a)(1) of the ESA directs that federal agencies shall use their programs and authorities to conserve endangered and threatened species.<sup>28</sup> To fulfill the purposes of the ESA, Section 9 of the ESA prohibits any person, including any federal agency, from “*taking*” an endangered species without proper authorization.<sup>29</sup> The term “*take*” is statutorily defined broadly as “*to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.*”<sup>30</sup> The definition of “*harm*” has been defined broadly by regulation as “*an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.*”<sup>31, 32</sup>

The SRKW population is the most intensively studied population of marine mammals in the world, and the best available science tells us that healthy wild Chinook salmon runs are critical to SRKW recovery. The SRKWs historic use of west coast waters qualifies this community as an important resource to the states of Washington, Oregon, and California, and therefore SRKWs should be considered when evaluating the potential impact of moving forward with the Project.

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<sup>24</sup> Ford, J.K.B, G.M. Ellis, P.F. Olesiuk, and K.C. Balcomb III. 2010. Linking killer whales survival and prey abundance: food limitation in the oceans apex predator? *Biology letters* 6(10): 139-142; Ward, E.J. E.E. Homes and K.C. Balcomb III 2009. Quantifying the effects of prey abundance on killer whale reproduction. *Journal of Applied Ecology*, 46(3):632-640.

<sup>25</sup> 16 U.S.C. § 1531(b).

<sup>26</sup> *Id.* at § 1531(c)(1).

<sup>27</sup> *Id.* at § 1532(3).

<sup>28</sup> *Id.* at § 1536(a)(1).

<sup>29</sup> *Id.* at § 1538(a)(1)(B).

<sup>30</sup> *Id.* at § 1532(19).

<sup>31</sup> 50 C.F.R. § 222.102; see also *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687 (1995) (upholding same regulatory definition of harm in 50 C.F.R. § 17.3).

<sup>32</sup> 2018. Center for Biological Diversity and Wild Fish Conservancy’s 60-day notice of intent to sue the U.S. Department of Commerce, the Secretary of Commerce, the National Marine Fisheries Service (also known as NOAA Fisheries), and the Northwest Regional Administrator for the National Marine Fisheries Service (collectively “NMFS”) for violations of the Endangered Species Act (ESA), 16 U.S.C. §§ 1531, et seq.

As NMFS recently acknowledged, “new information ... confirms that ... [S]outhern [R]esidents spend substantial time in coastal areas of Washington, Oregon and California and utilize salmon returns to these areas.”<sup>33</sup> These coastal waters are recognized as essential foraging areas for this critically endangered population in the winter and spring, and are currently under consideration to be designated as critical habitat for the SRKW <sup>34</sup>, which will include a much larger and densely populated portion of the Chinook salmon range along the Pacific coast. Therefore, the Project DEIS gets it wrong by stating, “Operations would have significant adverse impacts on these fish. Construction and operation would also have a moderate adverse impact on Southern Resident killer whales.” A moderate impact which would lead to extinction is unacceptable. Therefore, Ecology needs to explain how they plan to recover a population that is small and declining by making things worse. And, in doing so will need to include an additional comment period.

The Project DEIS does not portray an accurate description of the distribution of SRKWs and this impacts the decision being proposed. It is duly noted that between 1976 and 2004 there had been only 11 documented sightings in United States (U.S.) coastal waters.<sup>35</sup> However, between 2006 and 2011, 131 acoustic detections were collected by deploying acoustic recorders in seven locations on the continental shelf of the U.S. west coast from Cape Flattery, WA to Pt. Reyes, CA to detect and record endangered SRKWs. Detection rates of SRKWs were greater in 2009 and 2011 than in 2006 - 2008, were most common in the month of March, and occurred with the greatest frequency off the Columbia River and Westport, which was likely related to the presence of their most commonly consumed prey, Chinook salmon.<sup>36</sup> The use of passive acoustic recorders has greatly increased the knowledge of seasonal and annual occurrences of SRKW in the coastal waters of the United States. Satellite tracking of individual SRKWs also revealed the extent to which they used Pacific coastal waters, and their focus on the migratory routes of Chinook for most of this time. Further, use of this portion of the range has increased as Fraser River Chinook runs have declined, indicating Chinook runs from the Chehalis River Basin, as well as the Columbia River Basin (the two largest river basins in Washington) are likely to be more important in the coming years than they were in the first 40 years of intensive study of SRKWs.

As noted in the DEIS, these runs are supposed to decline 70% due to climate change, therefore making it clear that in order to recover the SRKWs, we need to ensure all steps are taken to recover Chinook runs by mitigating climate change, not by moving projects forward that contribute to climate change. Therefore, a 70% decline in Chinook numbers due to climate change would need to be offset in order to maintain the current status quo. Riparian habitat improvement must be expansive enough to not only offset future declines in marine survival, but freshwater survival needs -- at minimum -- to at least double even if marine survival remained the same to allow delisting. To continue large scale habitat degradation such as the Project is like being in a hole and continuing to dig – it just doesn’t make sense.

The DEIS fails to consider the effects of inbreeding of jeopardy to the Distinct Population Segment (DPS) survival. With only 72 members of the SRKW population remaining, maintaining constant numbers will result

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<sup>33</sup> Michael J. Ford, Nat’l Marine Fisheries Serv., Status Review Update of Southern Resident Killer Whales 26 (2013). In fact, evidence indicates that Southern Residents spend the majority of time in coastal and offshore waters. Cf. M. Bradley Hanson, et al., Assessing the Coastal Occurrence of Endangered Killer Whales Using Autonomous Passive Acoustic Recorders, 134 J. OF THE ACOUSTICAL SOC’Y OF AMERICA 3486, 3486 (2013) [hereinafter Coastal Occurrence] (explaining that “on average the whales occur in inland waters less than half of the days each year”).

<sup>34</sup> 12-Month Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment, 80 FR 9682, published 2/24/2015.

<sup>35</sup> 2004. Krahn, et al.

<sup>36</sup> 2013. M. Bradley Hanson, a, Candice K. Emmons, and Eric J. Ward. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders.

in loss of genetic diversity and increased inbreeding, both of which reduces the likelihood of recovery. That is, a plan that does not contribute toward significantly increasing SRKW numbers results in *jeopardy*. In his ruling on the Maury Island gravel mine case, Judge Martinez noted that even small threats to an already endangered population were likely to result in *jeopardy*. Thus, the DEIS should have concluded that the proposed project is likely to significantly adversely affect SRKWs and result in jeopardy to the DPS' survival.

Since the Project DEIS is able to conclude that, "*Construction and operation would also have a moderate adverse impact on SRKWs*", this Project is walking a fine line against the guidelines set forth in "*Jeopardy*" under the Endangered Species Act (ESA). Section 7(a)(1) directs that the Secretaries of Interior and Commerce use programs administered by these departments "in furtherance of the purposes" of the ESA.<sup>37</sup> Similarly, this section requires that all other federal agencies, in consultation with the Secretaries, also exercise their authorities to advance the ESA's purposes by "carrying out programs for the conservation" of listed species.<sup>38</sup> In addition, section 7(a)(1) mandates that ALL federal agencies "insure" that all actions they authorize, fund, or carry out are not likely to "jeopardize the continued existence of" listed species or "result in the destruction or adverse modification: of critical habitat of threatened and endangered species."<sup>39</sup> ALL federal agencies, including Ecology, have an obligation to insure independently that their actions do not jeopardize the continued existence of listed species.<sup>40</sup> The best available science makes it quite clear that SRKWs are on the brink of extinction, therefore, unless exemption is granted by the so-called "God Squad,"<sup>41</sup> which would need to vote to allow SRKWs to go "extinct", federal agencies may not fund, authorize, or carry out actions that US Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) concludes are likely to jeopardize listed species with inevitable extinction.

The DEIS makes numerous references to the degradation of salmon habitat:

- Construction and operation of the Proposed Project would have a significant adverse impact on aquatic habitat from the headwaters of the Chehalis River to the middle mainstem
- The removal of vegetation, increase in temperature, and reduced water quality would negatively affect aquatic habitat and species. Construction and operation would have significant adverse impacts on spring-run Chinook salmon, fall-run Chinook salmon, Coho salmon, and steelhead from degraded habitat, noise, and fewer fish surviving passage around the FRE facility
- These significant impacts on fish and aquatic species and habitat would be unavoidable unless the Fish and Aquatic Species and Habitat Management Plan and other mitigation plans meet regulatory requirements and implementation is feasible<sup>42</sup>

The DEIS also notes more than eleven times throughout the document that, "*There is uncertainty if mitigation is technically feasible and economically practicable; therefore, the Proposed Project would have significant*

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<sup>37</sup> 16 U.S.C. §1536(a)(1) 1999. Congress set forth the ESAs purposes in the first section of the statute.

<sup>38</sup> Id.

<sup>39</sup> Id. At §1536(a)(2). 2000. In joint regulations implementing section 7, FWS and NMFS have taken the position that these section 7 prohibitions do not apply to actions of federal agencies carried out in other countries. See 50 CFR § 402.01(a).

<sup>40</sup> See Pyramid Lake Paiute Tribe v. U.S. Navy, 898 F.2d. 1410, 1415 (9<sup>th</sup> Circuit 1990).

<sup>41</sup> In 1978, Congress amended the ESA to empower a cabinet-level "Endangered Species Committee" to exempt actions from the strictures of section &. See 16 USC § 1536(e)-(o). The Committee's power over the very existence of species on the brink of extinction earned it the nickname of the "God Squad."

<sup>42</sup> <https://fortress.wa.gov/ecy/publications/parts/2006002part1.pdf>

*and unavoidable adverse environmental impacts on fish and aquatic species and habitat.*"<sup>43</sup> Again, Orca Conservancy finds and agrees that moving forward with this project would cause irreparable destruction of needed habitat for Chinook salmon, leading to their almost certain listing on the ESA. The critically endangered SRKW cannot survive another decimated Chinook salmon run.

The DEIS does perform a thorough analysis of the Project. In fact, the findings of the DEIS clearly support Ecology to move against this project to ensure it does not move forward.

The DEIS though did not do a good job of researching the Local Actions Alternative. Orca Conservancy suggests the following as preferred alternatives to the Project in order to improve flood reduction:

- Allowing uninhabited areas to flood, which slows down flood waves heading for settled areas, stores groundwater for summer use, and restores soil for agriculture. • Replacing undersized culverts to prevent water from backing up and flooding nearby homes, buildings, and towns during heavy rain events
- Promote reverting farms along the river back to forested floodplain (along the lines of the Iowa/Napa models). Adding high flow channels where reclaiming flood plain is not feasible would be less desirable. But, if designed so that fish have access to low flow side channels and are not at risk of being stranded when flood waters recede, could be acceptable. Floodplains by Design is a Washington State program that would be appropriate to invoke here
- In addition to referring to the importance of trees for climate change, it's also important to mention their ability to prevent flooding by spreading out the time it takes water to reach the ground, transpiring water back into the air, and creating a spongy soil that can hold water. Floodwater flowing around trees can carve channels that lower the ground. Nurse logs can get trees up off the ground so they can survive flooding
- Trees also play an important role in salmon recovery. Additionally, this approach not only addresses flooding, it does it in a way that benefits rather than harms endangered species
- Strategies within the Room for the River initiative also include moving structures and residents out of floodplains and preventing new construction within these zones. Flooding disasters cost the US taxpayers more than 54 billion dollars annually. It is not unreasonable to move citizens to safer areas out of harm's way. Areas within the US, including the Iowa Corridor River Project and the Napa River/Napa Creek Flood Control Project, are utilizing these strategies with success<sup>44</sup>

Most river basins around the world suffer from anthropogenic influences, and climate change is a universal phenomenon. To successfully manage a river basin, it is necessary to understand the recent geologic history and the human management trajectory of the system, and to understand how our management of these river basins has had the unintended consequence of contributing to climate change. The DEIS notes that, "construction and operation would cause over 123,000 metric tons of greenhouse gas emissions" and that "90% of the trees in the 600-acre temporary reservoir would be removed during construction . . . 847 acres

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<sup>43</sup> Id.

<sup>44</sup> <https://blogs.ei.columbia.edu/2011/06/07/making-room-for-rivers-a-different-approach-to-flood-control/>

would be temporarily flooded when the reservoir holds water killing trees and vegetation.”<sup>45</sup> The construction of the Project and the operations of the Project add to climate change via greenhouse gas emissions and destruction of forest limiting carbon sequestration.

If we are serious about the impact climate change has on flooding, then we need to ensure that the methods we choose to mitigate flooding due not in fact lead to increasing climate change, in essence, we need to not fall into a *Catch-22*. Therefore, the only safe way forward is to follow the Room for the River strategies, which protect against flooding, reduce flooding, and do not add to climate change.

A new regionally-led approach is urgently needed with Northwest policymakers working closely with the region’s stakeholders, sovereigns, and citizens to craft a lawful, science-based plan that protects against flooding, while recovering salmon and SRKWs and invests in vibrant fishing and farming communities for current and future generations.

Lastly, Orca Conservancy believes strong leadership from the Department of Ecology is mandatory in guiding the Pacific Northwest (PNW) to a place where abundant wild salmon and steelhead populations once again support communities, livelihoods, and honor treaty rights, but most importantly wild salmon is needed to sustain the critically endangered SRKWs. The remaining 72 SRKWs are a totem species and an icon not only in the state of Washington, but the entire PNW. As an organization that has been advocating for this population’s recovery since 1996, it is undeniable that this population is trying incredibly hard to continue its existence within its core habitat. It is also undeniable that we, as humans, continue to create obstacle after obstacle which undermines the SRKWs rightful existence. Enough is enough. Trying to prevent flooding is a fool's errand. Better to spend the money adapting to the environment than trying to adapt the environment to impractical building placement.

*“The problems faced by orcas and salmon are human-caused, and we as Washingtonians have a duty to protect these species. The impact of letting these two species disappear would be felt for generations.”*  
Governor Jay Inslee <sup>46</sup>

Sincerely,



Shari Tarantino  
Executive Director

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<sup>45</sup> <https://fortress.wa.gov/ecy/publications/documents/2006002.pdf>

<sup>46</sup> <https://medium.com/wagovernor/inslee-signs-executive-order-to-protect-orcas-chinook-salmon-8eb97d00b41d>



**From:** [Jennifer Seely](#)  
**To:** [Chehalis](#)  
**Subject:** [Non-DoD Source] Comments on NEPA DEIS  
**Date:** Tuesday, November 17, 2020 5:11:05 PM  
**Attachments:** [NEPA DEIS Comment Final.pdf](#)

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Hello Army Corps,

I hope this message finds you well!

I just submitted comments on the Chehalis Basin NEPA DEIS on behalf of the Center for Environmental Law & Policy using the online form. Since it is the last day to submit comments and the online form does not give an exact deadline, I am submitting the comments here as well just to be safe.

Thank you so much for your attention to our input, and take care!

Jennifer Seely  
CELP Pro Bono Volunteer  
UW Law '21



Chehalis River Basin Flood Damage Reduction Project  
c/o Anchor QEA  
6720 South Macadam Street, Suite 125  
Portland, Oregon 97219

RE: Comments on Chehalis River Basin Flood Damage Reduction Project Draft NEPA EIS  
Filed Electronically Only

Dear U.S. Army Corps of Engineers:

The Center for Environmental Law & Policy (CELP) appreciates this opportunity to provide comments on the Chehalis River Basin Flood Damage Reduction Project Draft Environmental Impact Statement (DEIS). The environmental review of this project is particularly important because the Chehalis is one of only four rivers in Washington with undammed flow greater than one hundred miles,<sup>1</sup> and with the exception of bull trout,<sup>2</sup> the Chehalis' salmonid stocks have not yet declined to the point of being listed under the Endangered Species Act.<sup>3</sup> This is a precious state of affairs.

Salmon are essential to our regional identity, to tribal lifeways, and to the livelihoods of native and non-native fishermen.<sup>4</sup> Building a dam would devastate these fish, already at severe risk from existing habitat degradation<sup>5</sup> that will be exacerbated by climate change, and would harm Washington's coastal fishing economies. Building the proposed dam would also cost hundreds of millions of dollars, not including mitigation costs, at a time when the state budget is under extraordinary pressure from the economic effects of COVID-19.<sup>6</sup>

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<sup>1</sup> TIM PALMER & ANN VILEISIS, GREAT RIVERS OF THE WEST: WASHINGTON, WESTERN RIVERS CONSERVANCY 16, <http://www.westernrivers.org/downloads/files/GROW%20FINAL/WA%20GROW.pdf>.

<sup>2</sup> NEPA DEIS at K-23. Coastal/Puget Sound bull trout are ESA-listed as threatened. 64 Federal Register 58909. Bull trout are documented to occur in lower Chehalis River and Grays Harbor tributaries and are presumed to occur in the lower mainstem Chehalis River, which is part of the species' designated critical habitat upstream to RM 43 (near Oakville). 75 Federal Register 63898.

<sup>3</sup> See their absence from pages NEPA DEIS at K-23-24.

<sup>4</sup> See, e.g., Langdon Cook, *Why Wild Salmon Remains King in the Pacific Northwest*, NAT. GEOGRAPHIC (MARCH 27, 2019), <https://www.nationalgeographic.com/travel/features/searching-for-wild-pacific-northwest-salmon-from-river-to-table/#close>.

<sup>5</sup> 2014 RECOMMENDATION REPORT, GOVERNOR'S CHEHALIS BASIN WORK GROUP (November 25, 2014).

<sup>6</sup> Joseph O'Sullivan, *As Coronavirus Freezes the Economy, Gov. Inslee Slashes Hundred of Millions of Dollars From Washington State Budget*, SEATTLE TIMES (April 3, 2020, 9:13PM), <https://www.seattletimes.com/seattle-news/politics/as-coronavirus-freezes-the-economy-inslee-slashes-hundreds-of-millions-of-dollars-in-state-spending/>.

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In 2007, devastating flooding led to the creation of the Office of the Chehalis River and planning for strategies to reduce flood damage.<sup>7</sup> Chehalis Basin residents need a flood strategy that reduces flood damage and flood risk for their families, homes, and livestock, but this proposal for a large dam on one fork of the Chehalis River would not provide the needed relief. Further, this proposal is for a large “expandable” dam,<sup>8</sup> which is an improper project segmentation under the National Environmental Policy Act (NEPA).

The proposed dam would partially reduce flood risk for only a minority of cities in the basin— i.e., it would not solve the problem. This incomplete fix would come at an unacceptable cost to salmon, treaty fishing rights, and Endangered Species Act-protected species including Southern Resident Killer Whales. Climate change is already harming fish by increasing river temperatures and degrading ocean conditions through acidification,<sup>9</sup> and this dam could consign Chehalis Basin residents to being Pacific Northwesterners without salmon. Amazingly, the DEIS’s salmon modeling fails to incorporate climate change, rendering its projections inaccurate.<sup>10</sup>

The NEPA DEIS suffers from a lack of forthrightness, a lack of detail, and an adherence to a preconceived notion that a dam would be preferable to all alternatives. A DEIS under the State Environmental Policy Act (“SEPA DEIS”) was previously published and contained substantial inadequacies.<sup>11</sup> The Corps’ NEPA DEIS now repeats mistakes from the SEPA DEIS while including even less detail and analysis. Overall, neither document shows that the dam proposal would meet the basin’s needs, and both documents show that the proposed dam would have unacceptable environmental impacts. These problems are discussed below.

## **I. Lack of a Complete Flood Management Solution**

The Chehalis Basin desperately needs flood management solutions that meet local needs in the entire basin rather than simply bulking up protection for interstate commerce on Interstate 5 and for some of the existing structures within the floodplain. The dam tries to meet this need sideways and backwards: it is aimed at protecting the people and livestock living in the basin, which is an essential goal, but it does so in a way that would create a cascade of new problems without solving the original one.

The proposed dam would not protect all basin communities from flood damage, and the flooding projected for the future would make this dam irrelevant. The NEPA DEIS fails to wrestle with climate modeling,<sup>12</sup> and fails to discuss the proposed dam’s impact on flooding. The SEPA DEIS projected that during a seven-year flood (under existing conditions), the proposed expandable dam “would reduce the downstream area affected by a major flood by 10% and a catastrophic

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<sup>7</sup> Hal Bernton & Ralph Thomas, *Extensive Flooding, 3 Confirmed Deaths, Hundreds of Rescues*, SEATTLE TIMES (Dec. 5, 2007, 12:00AM), <https://www.seattletimes.com/seattle-news/extensive-flooding-3-confirmed-deaths-hundreds-of-rescues/>.

<sup>8</sup> NEPA DEIS at 26.

<sup>9</sup> SEPA DEIS at E-57.

<sup>10</sup> NEPA DEIS at K-46.

<sup>11</sup> CELP Comments on SEPA DEIS, see Organizational Comments on SEPA DEIS,

[https://www.chehalisbasinstrategy.com/wp-content/uploads/2020/06/Organization\\_Comments\\_Combined.pdf](https://www.chehalisbasinstrategy.com/wp-content/uploads/2020/06/Organization_Comments_Combined.pdf).

<sup>12</sup> NEPA DEIS at 40.

flood by 11%.”<sup>13</sup> In a late-century catastrophic flood scenario, the dam would protect less than half of *existing* structures.<sup>14</sup> The city of Chehalis would still see more than 10 feet of inundation during a late century “catastrophic flood.”<sup>15</sup> By late in this century, climate change modeling predicts a 25% chance of a “major flood” in any given year.<sup>16</sup> The proposed dam’s failure to protect property and structures would surely lead to calls for a larger and taller dam, which the NEPA and SEPA DEISs quietly punt to a future environmental review.<sup>17</sup> Under NEPA, an EIS cannot falsely segment a project that is in fact one big project.<sup>18</sup>

Compounding this issue is the concern that the Applicant will save habitat mitigation for last and then run out of money, such that it never actually happens. Large dam projects routinely exceed their budgets by eye-popping magnitudes.<sup>19</sup> Here, spending hundreds of millions of dollars on a dam that would (hopefully) protect only 1,280 of 2,955 *currently existing* structures in a late century catastrophic flood scenario<sup>20</sup> is irresponsible by every measure: by the dam’s lethal impact on salmon in violation of law and treaty obligations, by the dam’s likelihood of encouraging further floodplain development that negates its effectiveness and harms fish habitat, and by the need for restraint in the state budget because of the economic effects of coronavirus. These problems argue against massive expenditures on a project of this magnitude that will produce such questionable results.

## II. Improper Scoping & Segmentation

The DEIS raises concerns that the U.S. Army Corps of Engineers (Army Corps or Corps) is improperly “segmenting” environmental review of a much larger project. Under NEPA and its implementing regulations, when evaluating a proposed project’s environmental impacts, an agency must take account of “connected,” “cumulative,” and “similar” actions whose impacts should be “discussed in the same impact statement” as the project under review.<sup>21</sup> An agency impermissibly segments environmental review when it divides connected, cumulative, or similar actions into separate projects “and thereby fails to address the true scope and impact of the activities that should be under consideration.”<sup>22</sup>

Actions are deemed “connected” with one another if they “(i) [a]utomatically trigger other actions which may require environmental impact statements,” “(ii) [c]annot or will not proceed

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<sup>13</sup> NEPA DEIS at 56.

<sup>14</sup> SEPA DEIS at S-9.

<sup>15</sup> SEPA DEIS at S-9. “In late-century, this type of flood has a 1 in 27 (4%) chance of occurring in any given year.” S-3.

<sup>16</sup> *Id.*

<sup>17</sup> NEPA DEIS at 3. (“The FRE facility would be built on a foundation that would allow for potential future expansion.”).

<sup>18</sup> *See, e.g., Thomas v. Peterson*, 753 F.2d 754, 755 (9th Cir. 1985) (NEPA requires USFS to consider proposed timber sale along with the road in its DEIS. Not doing so was improper segmentation because they are connected actions. The road had no independent utility); *see infra* Section II.

<sup>19</sup> *See, e.g., Atif Ansar et al., Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development*, 69 ENERGY POL’Y 43 (2014).

<sup>20</sup> SEPA DEIS at S-9

<sup>21</sup> 40 C.F.R. § 1508.25(a).

<sup>22</sup> *Delaware Riverkeeper Network v. F.E.R.C.*, 753 F.3d 1304, 1313 (D.C. Cir. 2014) (holding that FERC impermissibly segmented NEPA review by failing to consider the cumulative impacts of four related natural gas pipeline upgrade projects).

unless other actions are taken previously or simultaneously,” or “(iii) [a]re interdependent parts of a larger action and depend on the larger action for their justification.”<sup>23</sup> Under the third basis for finding a connected action, the essential question is whether the segmented projects have independent utility.<sup>24</sup> If the projects have no independent utility, their environmental review cannot be segmented.<sup>25</sup> Projects have independent utility where “each project would have taken place in the other's absence.”<sup>26</sup>

Here, the DEIS states that the proposed dam is “expandable” because it “would be built so its foundation could support a larger structure” in the future, which “could increase temporary reservoir storage from 65,000 acre-feet to 130,000 acre-feet.”<sup>27</sup> This larger foundation clearly lacks “independent utility” unless the larger dam is actually built, and is functionally part of the larger dam project. If expansion were to be proposed in the future, it would go through a separate environmental and permitting process.<sup>28</sup> But rather than artificially disconnecting the expansion from the current project, the Army Corps needs to look at all reasonably foreseeable impacts now.<sup>29</sup>

Since the proposed dam would only incompletely protect Centralia and Chehalis rather than the whole basin,<sup>30</sup> it would increase the pressure for building an expanded dam later. When actions are connected—such as (1) building a dam that is specifically designed to be expandable and (2) later expanding that dam—the EIS process must encompass all such connected actions to effectively study the environmental impacts.<sup>31</sup> These are not two independent actions; they are one extended building project. By failing to consider the actual scope of the project, the NEPA DEIS improperly segments the environmental review process in violation of NEPA.

The cost of building an expandable dam is \$60 to \$100 million more than building a dam that is the same size and does the same job but that would not be expandable.<sup>32</sup> This cost cannot be justified without first determining that an expanded dam is necessary and appropriate. This would be a huge and irreversible commitment of resources now to support expansion later, and suggests a high likelihood that the expanded dam would ultimately be built. Otherwise, the high cost is an enormous investment in a future that is totally un-analyzed in the DEIS. Both phases of dam construction would contribute to the high environmental and economic impacts of the project, and both must be the subject of a unified review process.<sup>33</sup>

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<sup>23</sup> 40 C.F.R. § 1508.25(a)(1).

<sup>24</sup> *Twp. of Bordentown, New Jersey v. Fed. Energy Regulatory Comm'n*, 903 F.3d 234, 249 (3d Cir. 2018).

<sup>25</sup> See *Delaware Riverkeeper Network*, 753 F.3d at 1313.

<sup>26</sup> *Webster v. U.S. Dep't of Agric.*, 685 F.3d 411, 426 (4th Cir. 2012) (collecting cases).

<sup>27</sup> NEPA DEIS at D-25.

<sup>28</sup> *Id.*

<sup>29</sup> *Delaware Riverkeeper Network*, 753 F.3d at 1313.

<sup>30</sup> SEPA DEIS at S-9.

<sup>31</sup> 40 CFR § 1508.25(a)(1).

<sup>32</sup> *Summary Comparison of FRO, FRFA, and FRE Alternatives*, CHEHALIS RIVER BASIN FLOOD CONTROL COMBINED DAM AND FISH PASSAGE SUPPLEMENTAL DESIGN REPORT, FRE DAM ALTERNATIVE (Sept. 2018), Table 11-1 at 41-42, <https://www.chehalisbasinstrategy.com/wp-content/uploads/2018/09/FRE-Alternative-Supplemental-Report-2018-09-27-reduced.pdf>.

<sup>33</sup> *Delaware Riverkeeper*, 753 F.3d at 1313.

The DEIS completely fails to explain why this expandable dam is required. If it is not justified, why spend millions more? But if it is justified, and the Applicant actually intends to enlarge the dam, then why are the true environmental impacts not analyzed now? Falsely articulating the expansion as a separate project is a straightforward NEPA violation, because it has no independent utility and would not take place in the absence of first dam's expandable foundation.<sup>34</sup> The proposed expandable dam is a textbook case of an unlawfully segmented action, and the DEIS should analyze all connected actions now.

### III. Speculative Mitigation

As part of considering reasonable alternatives in an EIS, NEPA requires agencies to consider mitigation measures not in the proposed action.<sup>35</sup> Under NEPA, a substantive mitigation plan need not be adopted for an EIS, but mitigation must be discussed in sufficient detail to ensure that environmental consequences have been “fairly evaluated.”<sup>36</sup> Courts have emphasized “the requirement that mitigation measures be supported by substantial evidence.”<sup>37</sup> Some “quantified or detailed information is required” so that courts and the public can be assured that the agency took the “hard look” that NEPA requires.<sup>38</sup>

Here, unless mitigation is successful, the DEIS concludes that significant impacts are unavoidable in nearly every major category, including impacts on habitat, salmonids, other fish, shellfish, and Southern Resident Killer Whales. Given that potential mitigation actions are so important to predicting the actual environmental impacts of the project, the final DEIS should go into much greater detail about possible actions and their likelihood of success.

The NEPA DEIS does not analyze any mitigation measures for the impacts of climate change. Even without the proposed project, climate change will cause a net loss of ecological function in the Chehalis Basin.<sup>39</sup> Climate change is emphatically not an argument for throwing up ones' hands and giving up all hope of improving ecological function; legal obligations to tribes and to the citizens of Washington state forgo that faulty conclusion.<sup>40</sup> Rather, the final NEPA EIS should directly address the options for, and feasibility of, creating improvements in ecological function that are greater than the losses predicted from the project.

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<sup>34</sup> See, e.g., *Thomas v. Peterson*, 753 F.2d 754, 755 (9th Cir. 1985) (NEPA requires USFS to consider proposed timber sale along with the road in its DEIS. Not doing so was improper segmentation because they are connected actions. The road had no independent utility).

<sup>35</sup> 40 CFR § 1508.25(b)(3); 40 CFR § 1502.14.

<sup>36</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 333, 109 S. Ct. 1835, 1837, 104 L. Ed. 2d 351 (1989) (When conducting an EIS, NEPA includes the “requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated”).

<sup>37</sup> *Nat'l Audubon Soc. v. Hoffman*, 132 F.3d 7, 17 (2d Cir. 1997) (holding that USFS violated NEPA when deciding to extend road conduct logging by failing to adequately consider all relevant factors, and USFS's determination that preparation of environmental impact statement (EIS) was unnecessary was arbitrary and capricious).

<sup>38</sup> *Neighbors of Cuddy Mountain v. U.S. Forest Service.*, 137 F.3d 1372, 1379 (9th Cir. 1998) (holding that USFS violated NEPA when it approved a timber sale because its description of mitigating measures it would impose to offset damage that proposed timber sale would cause to redband trout habitat was insufficient).

<sup>39</sup> SEPA DEIS at S-1.

<sup>40</sup> See, e.g., *U. S. v. Washington*, 853 F.3d 946 (9th Cir. 2017), *aff'd by an equally divided court* 138 S. Ct. 1832 (2018).

In the environmental review process for the proposed expandable dam, the SEPA DEIS kicked the can down the road to federal agencies to consider climate change mitigation rather than rather than explain how the adverse effects of the dam would be mitigated (and what assurances exist that the mitigation would be maintained in perpetuity).<sup>41</sup> But here, the responsible Federal agency (the Corps) makes even *less* mention of climate change and provides no suggestions at all for mitigating its effects. In the main DEIS, the Corps mentions climate change only twice in a 302-page document, when setting forth the comments received during the scoping process.<sup>42</sup> In the Aquatic Species and Habitats Appendix, the NEPA DEIS discusses climate change only to explain that “climate change modeling was not included in this [species impact] model.”<sup>43</sup> The Corps’ species impact modeling is therefore useless. It acknowledges that including climate change predictions would “dramatically alter” species responses and conclusions about the effects of the proposed project on salmonids.<sup>44</sup>

This is no way to plan for mitigation. Closing one’s eyes and assuming that future conditions will mirror the present even in the face of climate change will result in foreseeable harm to legally protected species. Failing to include climate change in the NEPA analysis means the DEIS cannot make accurate projections of the dam’s impacts, let alone determine how to mitigate them. The Corps must address, rather than simply list, the concerns elicited in the scoping process.

The NEPA DEIS also fails to thoroughly discuss impacts on recreation and possible mitigation. It mentions hikers and kayakers,<sup>45</sup> but does not fully analyze mitigation measures for their experiences. When building water resource development projects, distinct but related to the flood management project at hand, the Army Corps’ official federal policy is to “manage the natural, cultural and developed resources of each project in the public interest, providing the public with safe and healthful recreational opportunities while protecting and enhancing these resources.”<sup>46</sup> The NEPA DEIS should more thoroughly analyze the proposed dam’s impacts on recreation and possible mitigation measures.

#### **IV. Unaddressed Effects on Salmonids**

The upper Chehalis, where the dam is proposed, has the best spawning and rearing habitat for salmon in the whole basin.<sup>47</sup> Chinook salmon, chum salmon, coho salmon, steelhead, and coastal cutthroat are all widespread in the Chehalis River and associated off-channel and floodplain habitats.<sup>48</sup> Throughout all life stages, they require cool, clear water. To date, the Chehalis has continued to support fish populations, although the numbers have decreased like in other rivers,

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<sup>41</sup> SEPA DEIS at E-83.

<sup>42</sup> NEPA DEIS at 8, ES-3.

<sup>43</sup> NEPA DEIS at K-46.

<sup>44</sup> NEPA DEIS at 46.

<sup>45</sup> *See, e.g.*, NEPA DEIS at 230.

<sup>46</sup> 36 C.F.R. § 327.1(a).

<sup>47</sup> Lea Ronne, Nicholas Vanbuskirk, Curt Holt, & Mara Zimmerman, SPawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2017-2018, Washington Department of Fish & Wildlife (2018), <https://wdfw.wa.gov/sites/default/files/publications/02034/wdfw02034.pdf> (“The highest density of fall Chinook occurred between the proposed dam site (RM 108.2) and Elk Creek (RM 100.2)”).

<sup>48</sup> SEPA DEIS at E-26.

and habitat restoration is essential. Climate change poses a threat to these fish, and a dam's negative impact would compound these effects.

According to a 2016 report to the Quinault Indian Nation by Larry Lestelle, a Poulsbo-based fisheries biologist who has studied the Chehalis Basin for 45 years, the basin historically saw an average of 778,000 steelhead, coho and Chinook salmon swimming upstream a year.<sup>49</sup> That number fell to 111,800 in 2003 and to 75,500 in 2016.<sup>50</sup> Without restoration, Lestelle estimates these numbers could drop to 40,300, threatening local tribes and fisheries.<sup>51</sup> Of those, spring Chinook are the most threatened: In 2016 only 1,500 returned.<sup>52</sup> Without aid, that number could fall to 200.<sup>53</sup>

In annual surveys, nearly every reach of the upper mainstem of the Chehalis River and every accessible tributary upstream of Crim Creek are consistently occupied by juvenile salmonids.<sup>54</sup> Crim Creek enters the Chehalis River just upstream of the proposed dam.<sup>55</sup> It would be shorn of its riparian buffer and submerged by the proposed reservoir during high flow events.<sup>56</sup> Chinook and steelhead in particular move up and downstream in reaches that would be affected by the proposed dam, to forage and maintain optimal body temperature.<sup>57</sup> Currently, salmon and steelhead spawn less than half a river-mile upstream of the proposed dam site, an area that would be inundated when the dam is operational, and less than a mile and a half downstream of the site, where flow would irreparably altered by the dam.<sup>58</sup>

The NEPA DEIS disingenuously pretends that the No Action Alternative would be more harmful to fish than building the dam.<sup>59</sup> It appears to be a quiet application of climate change modeling to the No Action Alternative, while omitting climate change projections from the analysis of the environmental impacts of the proposed dam.<sup>60</sup> Climate change is affecting the Chehalis Basin and the dam would do nothing to protect against those effects. The NEPA DEIS's odd projections for the No Action Alternative may also be due to a projection that low water quality will continue under the No Action Alternative, but not under the proposed dam scenario.<sup>61</sup> NEPA requires agencies to compare the proposed project to environmental baselines.<sup>62</sup> If the baseline is already bad, the Army Corps cannot pretend that the proposed dam would improve the situation when

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<sup>49</sup> John Stang, *Will Flood Protection Set Back Salmon Restoration in the Chehalis River Basin?*, CROSSCUT (Feb. 12, 2020), <https://crosscut.com/2020/02/will-flood-protections-set-back-salmon-restoration-chehalis-river-basin>.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> SEPA DEIS at E-29.

<sup>55</sup> NEPA DEIS at 68.

<sup>56</sup> This would have disastrous effects. For example, “[i]n the summer, the temperature of the Chehalis River and streams in the temporary reservoir area would increase up to 5.4°F and up to 9°F in Crim Creek. This is mainly from the removal of trees for construction and operation of the FRE facility which would reduce shade and cover in upland and riparian zones.” SEPA DEIS at 39.

<sup>57</sup> *Id.*

<sup>58</sup> SEPA DEIS at E-102 (citing Ashcroft et al. 2017).

<sup>59</sup> NEPA DEIS at ES-10–11.

<sup>60</sup> DEPA DEIS at K-ES-7.

<sup>61</sup> NEPA DEIS at K-53.

<sup>62</sup> See 40 C.F.R. § 1508.25.

nothing shows this would be the case. For the No Action Alternative, failing to improve the status quo is not equivalent to an adverse effect.

Further, the NEPA DEIS guarantees an inaccurate assessment of the proposed dam's environmental impacts because it makes no attempt to include climate change in modelling any alternative. For resource areas including fish, “[f]uture climate conditions were not modeled in this EIS.”<sup>63</sup> This is a stunning omission, since an understanding of climate change’s probable impacts on salmonids in Washington state has existed for years.<sup>64</sup> The NEPA DEIS acknowledges that “it is generally accepted that precipitation patterns and air temperatures in the Chehalis Basin will differ in the future compared to the data used in modeling.”<sup>65</sup> This means that baseline projections and modelled impacts from the proposed dam are already known to be incorrect. The final NEPA EIS must make a thoughtful attempt to include known climate impacts in its models and projections.

Under the Clean Water Act, Total Maximum Daily Load (TMDL)<sup>66</sup> levels have been set for temperature and dissolved oxygen in the Chehalis River, established by the Washington State Department of Ecology and approved by the U.S. Environmental Protection Agency.<sup>67</sup> These levels help to protect salmonids. The DEIS actually shows that the proposed project would contribute to further violations of these standards, and provides no pathway to mitigation of these effects. The final NEPA EIS should address TMDLs.

Having large woody debris in the river and associated streams “helps slow water velocities and contributes to the development of pools that provide cooler stream temperature, decreases fine sediment transport, provides refuge for juvenile fishes from predation, and enables successful feeding.”<sup>68</sup> To prepare for the reservoir, the Applicant would remove large woody debris from the river channel, which would have compounding and multivariant effects on salmon and other fish.<sup>69</sup> Removing trees from the temporary reservoir area would also reduce or eliminate future deposition of woody debris in the river and contributing streams.<sup>70</sup> Reduced wood input would create less robust river channeling and prevent pools and eddies from forming.<sup>71</sup> Yet pools and eddies from river channeling are places for juvenile salmon to survive away from faster currents, and places for salmon to spawn where their redds won’t be swept away.<sup>72</sup> The NEPA DEIS fails to meaningfully acknowledge these cascading effects, and is materially worse than the SEPA DEIS in

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<sup>63</sup> DEPA DEIS at K-ES-7.

<sup>64</sup> See, e.g., N.J. Mantua, I. Tohver, & A.F. Hamlet. Chapter 6 in *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington (2009).

<sup>65</sup> DEPA DEIS at K-ES-7.

<sup>66</sup> See 40 C.F.R. § 130.7.

<sup>67</sup> See, e.g., Reporting Watershed Improvement, Based on Statistical Evidence of Watershed-wide Improvement (Option 2a), Chehalis River Basin, Washington (May 2011), <https://www.epa.gov/sites/production/files/2016-03/documents/r10chehalis.pdf>.

<sup>68</sup> SEPA DEIS at E-103 (citing Wohl et al. 2015; Poff et al. 1997; Wald 2009).

<sup>69</sup> NEPA DEIS at 89.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

this respect. Neither DEIS considers the far-reaching downstream effects on salmonid survival of the loss of woody debris.<sup>73</sup>

By requiring the removal of vegetation from the upstream temporary reservoir inundation area, the dam would have a drastic impact on water temperatures in that area and the reaches directly downstream due to loss of shading.<sup>74</sup> Large trees greater than 6 inches in diameter and non-flood tolerant trees would be removed in the reservoir and construction area, “affecting over 600 acres of upland, riparian, and wetland areas.”<sup>75</sup> This means “[d]aily maximum [upstream] water temperatures would increase 0.5°C to 3°C, depending on time of year, from lack of shading, with the greatest impact in June through mid-September.”<sup>76</sup> Downstream from the proposed dam site in the middle and lower mainstem Chehalis River, the “function of the Chehalis River as a migratory corridor could be impaired by 2°C to 3°C increases in daily maximum summer water temperature.”<sup>77</sup> Summertime Chehalis River temperatures *already* exceed water quality criteria for core summer salmonid habitat and spawning, rearing, and migration.<sup>78</sup> The increase in temperature and the associated decrease in dissolved oxygen caused by the proposed project would exacerbate these violations of the water quality criteria. These impacts would kill salmon, and the NEPA DEIS does not discuss any mitigation for these lethal temperature effects.

Losing salmon does not just mean losing the identity of the region and its economic health; it also means the loss of that population’s unique genetic makeup. The spring- and fall-run Chinook that spawn in the upper Chehalis Basin are a significant source of genetic diversity for the population.<sup>79</sup> The upper basin of the Chehalis is warmer and is geographically and hydrologically distinct from other parts of the basin, and scientists have also observed genetic differences between Coho salmon from the upper basin and from other parts of the Chehalis Basin.<sup>80</sup> These concerns cannot be ignored.

Finally, while CELP does not speak for any Native American tribe, we remind the Corps that it has the obligation to honor tribal rights reserved in treaties and executive orders. The DEIS acknowledges that the Corps is bound by the federal government’s trust responsibility<sup>81</sup> to tribes.<sup>82</sup> But by demonstrating the high degree that fish would be harmed by the proposed project, the DEIS fails to respect the treaty right to take fish<sup>83</sup> and the accompanying right to fish habitat.<sup>84</sup> When the U.S. government fails to respect the lawful rights of tribes, it degrades

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<sup>73</sup> See e.g., Trevor A. Jones, Lori D. Daniels, *Dynamics of Large Woody Debris in Small Streams Disturbed by the 2001 Dogrib Fire in the Alberta Foothills*, 256 FOREST ECOLOGY AND MANAGEMENT 1751 (“For headwater streams in environments susceptible to floods and erosion we recommend that buffer zones comprised of snags to be established after fires . . . to ensure a supply of [large woody debris] into streams for years to decades after a stand-replacing fire” or other disturbance.”).

<sup>74</sup> NEPA DEIS at 69.

<sup>75</sup> SEPA DEIS at E-102

<sup>76</sup> SEPA DEIS at E-103.

<sup>77</sup> SEPA DEIS at E-104.

<sup>78</sup> NEPA DEIS at 48.

<sup>79</sup> NEPA DEIS at K-29–K-30.

<sup>80</sup> NEPA DEIS at K-34.

<sup>81</sup> See *Cobell v. Norton*, 240 F.3d 1081 (D.C. Cir. 2001).

<sup>82</sup> NEPA DEIS at 274.

<sup>83</sup> *U. S. v. Washington*, 384 F. Supp. 312 (W.D. Wash. 1974), *aff’d*, 520 F.2d 676 (9th Cir. 1975).

<sup>84</sup> *U. S. v. Washington*, 853 F.3d 946 (9th Cir. 2017), *aff’d by an equally divided court* 138 S. Ct. 1832 (2018).

resources that are used and shared by tribal and non-tribal people. The DEIS does not sufficiently recognize that spring and fall run Chinook salmon, coho salmon, steelhead, Pacific lamprey, and many other fish and shellfish are critical to the physical, cultural, and spiritual wellbeing of tribal nations. Although the Corps acknowledges that access to fish for harvest is a right reserved in tribal treaties,<sup>85</sup> it does not look at the proposed dam's potential impact on these rights. Instead, it merely mentions how an injunction to remove culverts harmful to treaty-protected fish impacts modeling.<sup>86</sup> As it continues its environmental review of the proposed dam, the US Army Corps must respect its government-to-government relationship with the affected tribes.<sup>87</sup>

### *Impacts of Dam Construction on Fish Populations*

For a period of five years, construction of the dam would impact fish populations, including killing fish, for a period of at least five years.<sup>88</sup> This would be catastrophic, because the loss of four or five year-classes in a row could end salmon runs in the Chehalis Basin. The DEIS openly acknowledges that construction of the expandable dam could completely eliminate spring-run Chinook salmon above the dam.<sup>89</sup> This alone is an unacceptable impact. Besides the temperature increases due to vegetation removal (which would begin during construction and continue to harm salmonids during operation),<sup>90</sup> fish would also be harmed by elevated turbidity due to earthwork in the river channel, sound pressure waves from rock blasting (which cannot be measured, only observed),<sup>91</sup> vibrations from roller-compacting concrete, and decreased or eliminated fish passage due to the large unlighted tunnel into which it is uncertain they would venture.<sup>92</sup> The diversion is expressly not designed to meet NMFS requirements for upstream passage of juvenile salmonids.<sup>93</sup>

During construction, migrating fish would move up the river with the assistance of a temporary trap and transport facility, and down the river through a diversion tunnel.<sup>94</sup> During trap and transport, adult salmonids would be prioritized.<sup>95</sup> Overall, the expected survival rate for fish during construction is exceptionally poor. During construction, only 45% of adult steelhead and 41% of adult Coho salmon travelling upstream are expected to survive.<sup>96</sup> It bears repeating that these numbers refer to survival, not just to fish passage.<sup>97</sup>

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<sup>85</sup> NEPA DEIS at K-6.

<sup>86</sup> NEPA DEIS EDT Modeling Report at 17.

<sup>87</sup> See, e.g., QUINULT INDIAN NATION COMMENTS, DRAFT ENVIRONMENTAL IMPACT STATEMENT, PROPOSED CHEHALIS RIVER BASIN FLOOD DAMAGE REDUCTION PROJECT UNDER STATE ENVIRONMENTAL POLICY ACT (May 11, 2020), [https://static1.squarespace.com/static/5ea74f37fc31534cf56f0946/t/5eb9c991e85fc52b2fef48b3/1589234071989/FINAL+QIN+Chehalis+DAM+DEIS+comment+5\\_11\\_2020.pdf](https://static1.squarespace.com/static/5ea74f37fc31534cf56f0946/t/5eb9c991e85fc52b2fef48b3/1589234071989/FINAL+QIN+Chehalis+DAM+DEIS+comment+5_11_2020.pdf).

<sup>88</sup> NEPA DEIS at K-47. This 5-year modeling assumes that construction would not last longer than projected, which it often does for large dam projects.

<sup>89</sup> NEPA DEIS at K-73.

<sup>90</sup> NEPA DEIS at K-ES-2.

<sup>91</sup> NEPA DEIS at K-47; SEPA DEIS at E-63.

<sup>92</sup> SEPA DEIS at E-100.

<sup>93</sup> NEPA DEIS at K-50.

<sup>94</sup> NEPA DEIS at K-49.

<sup>95</sup> NEPA DEIS at K-50.

<sup>96</sup> NEPA DEIS at K-82, Table 6.4-6.

<sup>97</sup> *Id.*

### *Fish Passage during Dam Operation is Speculative*

Proposed fish passage for when the dam would be in place is inadequately described and its effectiveness is uncertain. During normal flows, fish are supposed to migrate up and down through five tunnels at the base of the dam,<sup>98</sup> each 310 feet long and unlit.<sup>99</sup> During flood conditions when the outlets are closed, fish would migrate with the help of a permanent “collection, handling, transport, and release (CHTR) facility.”<sup>100</sup> The DEIS does not fully explain how this facility would operate.<sup>101</sup>

The Preferred Alternative’s projections for fish survival are based on the assumption that fish would readily migrate upstream through the “310-foot-long, unlit tunnels in the base” of the proposed dam during normal flow.<sup>102</sup> The NEPA DEIS asserts that “[u]nder normal conditions, when the gates are open, fish would be able to move upstream and downstream through the five gated outlets.”<sup>103</sup> The Army Corps does not describe any similar system elsewhere to demonstrate that this assumption will hold, and it does not offer any Plan B.

The Preferred Alternative’s lack of downstream passage for juvenile salmonids during flood retention is of particular concern. For both spring run (discussed further below with respect to Southern Resident Killer Whales) and fall run Chinook salmon, zero percent of juveniles travelling downstream are expected to survive during flood retention.<sup>104</sup> The analysis performed for the SEPA DEIS showed that the same was true for Coho, steelhead, coastal cutthroat, pacific lamprey, and western brook lamprey; this conclusion should have been addressed in the NEPA document.<sup>105</sup>

Upstream juvenile passage would also be greatly impacted. Survival rates for juvenile Chinook travelling upstream are projected to be as low as 64% during normal (i.e., non-flood retention) operations and 50% during flood retention operations. This is unacceptably low, especially when these species are already under stress from climate change. During flood retention, juvenile salmon travelling upstream (spring and fall run Chinook and Coho) would have only 64% survival.<sup>106</sup> Adult salmon travelling downstream are not expected to use passage in that direction, or no data is available.<sup>107</sup> The Corps should analyze these species more closely, and make more careful projections for flood operations.

Four years ago, the Center for Environmental Law & Policy raised these same concerns in comments on the Draft Programmatic DEIS for the Chehalis Basin. We were concerned about the

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<sup>98</sup> NEPA DEIS at 26.

<sup>99</sup> SEPA DEIS at 20.

<sup>100</sup> NEPA DEIS at K-47.

<sup>101</sup> NEPA DEIS at 32.

<sup>102</sup> SEPA DEIS at E-81 (“The impact assessment included the following assumptions during non-flood conditions: Fish would enter and pass through the 310-foot-long, unlit tunnels in the base of the FRE facility.”).

<sup>103</sup> NEPA DEIS at 26.

<sup>104</sup> *Id.*

<sup>105</sup> SEPA DEIS App. E, Table E-9.

<sup>106</sup> NEPA DEIS at K-128, Table 6.4-15.

<sup>107</sup> *Id.*

adequacy of fish passage, and the lack of detail in the proposed mitigation measures. We wrote: “Any fish passage method ultimately selected should operate through permanent features of the dam (i.e., fish ladders rather than trap and haul facilities), so that continued human intervention is not needed to provide for fish survival.” Today, the applicant and the state continue to rely on human intervention rather than structural adaptations for ensure fish passage past the proposed dam. Among other things, this requires adequate continued funding, which recent experience shows us is never assured. It bears repeating that this also assumes fish passage would actually be built and operational on schedule, which experience shows is unlikely.<sup>108</sup>

## V. Unaddressed Effects on Other Fish

If the proposed expandable dam were to be built, several other fish species would fall prey to all the same environmental stressors as the salmon discussed above. Many of these species are protected by the state Endangered Species Act, which sets out requirements for landowners to comply with conservation plans,<sup>109</sup> and others are protected by the federal Endangered Species Act. The right to take fish is also held by the Quinault Indian Nation, and impacts to these treaty-protected fish are insufficiently explored.

The NEPS DEIS does not sufficiently analyze lamprey. Western brook lamprey is listed by the state of Washington as a “Species of Greatest Conservation Need and Candidate for the state of Washington Priority Habitats and Species list.”<sup>110</sup> Likewise, “Pacific lamprey is included as a Species of Greatest Conservation Need in the Washington State Wildlife Action Plan and is a Species of Tribal Importance.”<sup>111</sup> Lamprey is important to tribes in the Pacific Northwest, and the NEPA DEIS contains insufficient information on the dam’s potential impact. Pacific lamprey are more thoroughly studied in the proposed project area, but the distributions of River lamprey and Western brook lamprey are less well-understood.<sup>112</sup>

The DEIS assumes that chum salmon need not be fully analyzed because they mostly occur downstream of the study area. Although chum salmon “spawn outside of the study area,” they “could be present in the lower portion of the Chehalis River 100-year floodplain study area.”<sup>113</sup> This lack of attention to chum salmon is concerning for the second-most abundant anadromous salmonid present in the basin.<sup>114</sup> Chum salmon, along with steelhead and coho, also provide an important supplement to Southern Resident Killer Whales’ diet of Chinook salmon.<sup>115</sup> Just because they do not spawn in the study area does not mean that chum will not be affected by a dam. Notes at the end of the fish appendix indicate that chum were not included in the EDT/

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<sup>108</sup> “A 2014 study of 245 dams in 65 countries, however, shows an average cost overrun of 96% for dam building.” *FAQ, CHEHALIS RIVER ALLIANCE*, <https://www.chehalisriveralliance.org/faq> (citing Atif Ansar et al., *Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development*, 69 ENERGY POL’Y 43 (2014)). The cited study examined hydropower rather than flood control dams, which unlike the proposed dam at issue have some prayer of providing a return on investment.

<sup>109</sup> Ch. 220-610 WAC.

<sup>110</sup> SEPA DEIS at E-44.

<sup>111</sup> SEPA DEIS at E-43.

<sup>112</sup> NEPA DEIS at K-38.

<sup>113</sup> NEPA DEIS at K-36.

<sup>114</sup> SEPA DEIS at E-45.

<sup>115</sup> NEPA DEIS at K-44.

NOAA LCM models because “#s were large and skewed results.”<sup>116</sup> This analysis is entirely insufficient.

The Olympic mudminnow, a state listed sensitive species, is also documented in the proposed inundation area.<sup>117</sup> It is unique to the coastal lowlands of western Washington, occurring “nowhere else in the world,” and the majority of its population is in the Chehalis Basin.<sup>118</sup> These facts have enormous implications for what a dam would mean for this species. Olympic mudminnows are heavily dependent on temporarily flooded wetland habitats and are sensitive to changes in hydrology. They require “a muddy bottom, little or no water flow, and abundant aquatic vegetation.”<sup>119</sup> Wetland loss in western Washington has been the primary cause of their decline thus far.<sup>120</sup>

Even before this NEPA DEIS, negative impacts were difficult to measure and prevent because shallow mudminnow habitats are often mis-mapped and mis-identified, and information is not always transmitted between managing agencies.<sup>121</sup> In 2009, a Glasgow and Hallock study explained: “Many mudminnow habitats are mis-mapped or misclassified as ‘non-fish bearing’ waters on the Washington State Department of Natural Resources regulatory water type maps, which can substantially reduce mudminnow habitat protection.”<sup>122</sup> Given that a comprehensive survey of streams and wetlands of the upper Chehalis has not been completed, it is likely that mudminnow habitat is still mis-mapped and mis-classified. The DEIS should have better information on habitat used by such a sensitive species, especially in light of the proposed dam’s hydrologic impacts, and the extent of wetland habitat the proposed dam would eradicate. NEPA, as an information forcing law, requires the Army Corps to do the research to answer questions like these.<sup>123</sup>

Coastal and Puget Sound bull trout are listed as threatened under the Endangered Species Act (ESA).<sup>124</sup> The mainstem Chehalis River from approximately river mile (RM) 16.5 to RM 45 is federally designated critical habitat for bull trout, as well as other adjacent river systems.<sup>125</sup> In rivers, changing upstream flow changes downstream flow, not to mentioned changes in temperature and dissolved oxygen. The proposed dam would affect this designated critical habitat, but the DEIS focuses on the fact that bull trout are not found precisely in the study area rather than studying how the proposed dam would impact downstream critical habitat.<sup>126</sup> The DEIS thus fails to actually evaluate the impacts of the Preferred Alternative on this species.

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<sup>116</sup> NEPA DEIS at D-1, Appendix K.

<sup>117</sup> NEPA DEIS at K-25.

<sup>118</sup> SEPA DEIS at E-48.

<sup>119</sup> THREATENED AND ENDANGERED WILDLIFE IN WASHINGTON: 2012 ANNUAL REPORT AT 157, <https://wdfw.wa.gov/sites/default/files/publications/01542/wdfw01542.pdf>.

<sup>120</sup> *Id.* at 158.

<sup>121</sup> *Id.* at 158.

<sup>122</sup> *Id.* at 158 (citing Glasgow & Hallock (2009)).

<sup>123</sup> See *Sierra Club v. United States*, 23 F. Supp. 2d 1132 (N.D. Cal. 1998) (circumstances changed after a flood, and NPS needed to revisit and reexamine an EIS for a Yosemite lodge).

<sup>124</sup> 64 Federal Register 58909. Under the ESA, ‘threatened species’ “means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” ESA § 3(20).

<sup>125</sup> NEPA DEIS at K-21.

<sup>126</sup> NEPA DEIS at K-23.

Likewise, the southern distinct population segment of Pacific eulachon is designated as threatened under the Endangered Species Act.<sup>127</sup> The Chehalis Basin is not included in their designated critical habitat because low numbers were found in Grays Harbor, but recent surveys suggest that eulachon exist higher in the Chehalis Basin.<sup>128</sup> The NEPA DEIS does not acknowledge this.<sup>129</sup> For policy makers to make informed decisions, this information should be included in the NEPA DEIS.

The southern distinct population segment of the green sturgeon is also listed as threatened under the Endangered Species Act.<sup>130</sup> Their nearest critical habitat to the Chehalis Basin is Willapa Bay and Grays Harbor, and the lower Columbia River from the mouth to river kilometer 74.<sup>131</sup> Green sturgeon are known to be in the Chehalis River, where suitable spawning habitat exists.<sup>132</sup> Grays Harbor has a recreational and commercial fishery for sturgeon,<sup>133</sup> and the NEPA DEIS should examine this economic impact.

The Chehalis River is also subject to increasing colonization by non-native fish.<sup>134</sup> Invasive bass, especially, are known to thrive in warmer and slower moving water.<sup>135</sup> Creating a reservoir at certain times of year would exacerbate the disadvantages of native fish relative to invasive bass. Building the dam would increase the bass population and its predation on juvenile salmonids, thereby decreasing the salmon population.<sup>136</sup> This is yet another way the dam is detrimental to not only economically and culturally critical salmon and steelhead populations, but also to many other native fishes of the Chehalis Basin ecosystem.

## VI. Shellfish & Macroinvertebrates

While knowledge of non-salmonid fish in the Chehalis River is incomplete, knowledge of shellfish and macroinvertebrates is even more limited. The NEPA DEIS Appendix on Aquatic Species and Habitats lacks a section on shellfish. The SEPA DEIS provides context for why this is the case: “The effects of the proposed actions on freshwater shellfish and aquatic macroinvertebrates are evaluated qualitatively because of a lack of documentation of their distribution in the primary study area, particularly in the areas that will be most affected in the temporary reservoir inundation area and the reaches immediately downstream of the proposed FRE site.”<sup>137</sup> The Corps should gather more information on these species when evaluating environmental impacts of the proposed dam.

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<sup>127</sup> 75 Federal Register 13012.

<sup>128</sup> SEPA DEIS at E-48.

<sup>129</sup> NEPA DEIS at K-23-24.

<sup>130</sup> 71 Federal Register 17757.

<sup>131</sup> *Green Sturgeon*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/species/green-sturgeon#conservation-management>.

<sup>132</sup> NEPA DEIS at K-24.

<sup>133</sup> SEPA DEIS at E-49.

<sup>134</sup> NEPA DEIS at K-2.

<sup>135</sup> SEPA DEIS at E-50.

<sup>136</sup> See NEPA DEIS at K-41.

<sup>137</sup> SEPA DEIS at E-82.

Freshwater mussels have a significant role in filtering and cleaning water in the Chehalis Basin.<sup>138</sup> For the survival of their populations, longstanding mussel sites must be allowed to persist. In 2018, WDFW recognized that their surveys “likely covered only a fraction of the mussel distribution in the Chehalis Basin, and species composition was not determined.”<sup>139</sup> During flood retention, freshwater mussels would be completely inundated with sediment during and after floodwater impoundment.<sup>140</sup> The Corps also does not know how increased temperatures will impact freshwater larvae.<sup>141</sup> These gaps in knowledge should be addressed.

Unlike the SEPA DEIS, the NEPA DEIS does not fully reckon with the important role of macroinvertebrates in the Chehalis Basin. The SEPA DEIS recognizes that aquatic macroinvertebrates “play a crucial role in the decomposition of organic materials and are a critical link in the flow of energy through the food web, from primary producers to vertebrate predators.”<sup>142</sup> In places like the Chehalis River where macroinvertebrate populations are suffering, chronic human impacts like climate change, pollutants, temperature increases, and loss of riparian vegetation all preclude recovery.<sup>143</sup>

Further, “[d]ams that have modified the natural flow regime of streams and rivers remove the structuring influence of floods on invertebrate communities, in some cases leading to dramatic, often deleterious, shifts in community composition.”<sup>144</sup> “This is one reason,” the SEPA DEIS acknowledges openly, “a number of ecologists advocate for the return or maintenance of natural flood regimes to regulated rivers.”<sup>145</sup> The NEPA DEIS should acknowledge the important role of macroinvertebrates in the Chehalis Basin, and pursue further study of the risks from the proposed dam.

## VII. Southern Resident Killer Whales

The proposed dam would have a negative and inadequately studied effect on endangered Southern Resident Killer Whales (SRKW). These animals rely on Chinook salmon as they journey up and down Washington’s coast, and a dramatic reduction in Chehalis Chinook would hurt them in their fight for survival. The Southern Resident distinct population segment of killer whales is protected by the Marine Mammal Protection Act, and was federally listed as endangered under the Endangered Species Act in 2005 and updated in 2014.<sup>146</sup> Their designated critical habitat

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<sup>138</sup> SEPA DEIS at E-50.

<sup>139</sup> SEPA DEIS at E-51.

<sup>140</sup> NEPA DEIS at K-ES-4.

<sup>141</sup> NEPA DEIS at K-ES-10.

<sup>142</sup> SEPA DEIS at E-52.

<sup>143</sup> SEPA DEIS at E-54 (citing Hershey and Lamberti 1998).

<sup>144</sup> SEPA DEIS at E-54 (citing Poff et al. 1997).

<sup>145</sup> SEPA DEIS at E-54.

<sup>146</sup> 70 Federal Register 69903; 79 Federal Register 20802.

generally covers Puget Sound, the Salish Sea, and the Strait of Juan de Fuca,<sup>147</sup> but in the winter and spring they range the open coast from Monterey Bay, California up to southeast Alaska.<sup>148</sup>

Many Washingtonians do not realize just how endangered the SRKW population is. As of November 2019 the population stands at only 73 individuals, down from 98 in 1995.<sup>149</sup> According to the Marine Mammal Commission, an independent federal agency, “[t]he prospects for recovery appear bleak, as since 2015 there has been just one birth that produced a calf who survived to juvenile age.”<sup>150</sup> The top threats to Southern Resident Killer Whales are low prey availability, pollution and contaminants, vessel traffic, and noise.<sup>151</sup>

Washington’s governor understands the gravity of the whales’ situation and has taken action to try and remedy their prospects. In 2018, Governor Inslee signed an executive order directing state agencies to take certain immediate actions and established a task force with tribes, Canadian agencies, and other partners.<sup>152</sup> The order recognized that the “health of Southern Residents and Chinook salmon are tightly linked.”<sup>153</sup> Studies have shown that “reduced Chinook salmon runs undermine the potential for the Southern Resident population to successfully reproduce and recover,” and both salmon and whales are already under stress from warming oceans and ocean acidification.<sup>154</sup>

The importance of Chinook salmon to the SRKW cannot be overstated. Chinook salmon make up about 80% of their diet.<sup>155</sup> As of the most recent task force report from 2019, Goal #1 for whale recovery is to “[i]ncrease Chinook abundance.”<sup>156</sup> Three Southern Resident Killer Whales died in 2019, “a tragic reminder that the Southern Residents are struggling from a lack of Chinook salmon” compounded by other stressors.<sup>157</sup> Looking forward, the task force recognized the need to “[s]ustain the priority focus on increasing Chinook salmon abundance.”<sup>158</sup> And the focus needs to be on increasing Chinook abundance *everywhere* – Southern Residents make their home in Washington’s Salish Sea for much of the year, but they seek Chinook “along the West Coast from

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<sup>147</sup> 71 Federal Register 69054 - ENDANGERED AND THREATENED SPECIES; DESIGNATION OF CRITICAL HABITAT FOR SOUTHERN RESIDENT KILLER WHALE, <https://www.govinfo.gov/app/details/FR-2006-11-29/06-9453> (“Three specific areas are designated, (1) the Summer Core Area in Haro Strait and waters around the San Juan Islands; (2) Puget Sound; and (3) the Strait of Juan de Fuca, which comprise approximately 2,560 square miles (6,630 sq km) of marine habitat.”).

<sup>148</sup> SOUTHERN RESIDENT KILLER WHALE, MARINE MAMMAL COMMISSION, <https://www.mmc.gov/priority-topics/species-of-concern/southern-resident-killer-whale/>.

<sup>149</sup> FINAL REPORT AND RECOMMENDATIONS, SOUTHERN RESIDENT ORCA TASK FORCE 4 (November 2019), [https://www.governor.wa.gov/sites/default/files/OrcaTaskForce\\_FinalReportandRecommendations\\_11.07.19.pdf](https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf).

<sup>150</sup> SOUTHERN RESIDENT KILLER WHALE, MARINE MAMMAL COMMISSION, <https://www.mmc.gov/priority-topics/species-of-concern/southern-resident-killer-whale/>.

<sup>151</sup> *Id.*

<sup>152</sup> EXECUTIVE ORDER 18-02, SOUTHERN RESIDENT KILLER WHALE RECOVERY AND TASK FORCE (March 14, 2018), [https://www.governor.wa.gov/sites/default/files/xe\\_order/eo\\_18-02\\_1.pdf](https://www.governor.wa.gov/sites/default/files/xe_order/eo_18-02_1.pdf).

<sup>153</sup> *Id.*

<sup>154</sup> *Id.*

<sup>155</sup> FINAL REPORT AND RECOMMENDATIONS, SOUTHERN RESIDENT ORCA TASK FORCE 19 (November 2019), [https://www.governor.wa.gov/sites/default/files/OrcaTaskForce\\_FinalReportandRecommendations\\_11.07.19.pdf](https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf).

<sup>156</sup> *Id.*

<sup>157</sup> *Id.* at 4.

<sup>158</sup> *Id.* at 8.

Northern California to Southeast Alaska.”<sup>159</sup> In all regions, the state’s focus is on making Chinook salmon populations “abundant, diverse, and accessible.”<sup>160</sup> And yet, several observers of the effects of climate change on the Chehalis Basin have posited that “Chinook are the most vulnerable to the increasing temperatures because they spend the most time waiting in upstream areas to spawn.”<sup>161</sup>

Advanced study of marine biology is unnecessary to appreciate the existential threat that the proposed dam presents to this delicate food web. Southern Resident Killer Whales are already at risk of extinction, and this dam would have a disproportionately negative impact on their primary food source. Chinook salmon from the Chehalis River contribute to the Grays Harbor population, which in turn contributes to the salmon population available to Southern Resident Killer Whales along the coast.<sup>162</sup>

The DEIS acknowledges merely that reduction in spring-run Chinook would have a “slight” impact on the endangered Southern Resident Killer Whales,<sup>163</sup> apparently less than the “moderate” impact projected by the SEPA DEIS.<sup>164</sup> Based on a finding that Chinook salmon spawning above the proposed dam contribute less than 5% of the total Chinook coming out of the Chehalis Basin/Grays Harbor system, the NEPA DEIS projects a “low impact” from this “small loss.”<sup>165</sup> But this is a significant loss when the Chinook population today is already so much smaller than historic levels.<sup>166</sup> The NEPA DEIS must wrestle with this risk.

## IX. Failure to Address Climate Risk

The fish, wildlife, and people of the Chehalis Basin are already experiencing negative effects from climate change. The dam would exacerbate these effects, which is yet another reason that the Applicants should pursue local flood resilience instead.

It is genuinely shocking how little this NEPA DEIS analyzes climate change. It openly acknowledges that “[f]uture climate conditions were not modeled in this EIS,”<sup>167</sup> noting only that “[i]f there is more precipitation in the future, it is possible that the proposed flood retention facility would operate more frequently.”<sup>168</sup> While this dam’s fish passage is speculative, climate change’s impacts in Washington are not. In the Pacific Northwest, average winter precipitation will likely increase “over the long term, but year-to-year variability in precipitation is also

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<sup>159</sup> *Id.* at 19.

<sup>160</sup> *Id.*

<sup>161</sup> John Stang, *Will Flood Protection Set Back Salmon Restoration in the Chehalis River Basin?*, CROSSCUT (Feb. 12, 2020), <https://crosscut.com/2020/02/will-flood-protections-set-back-salmon-restoration-chehalis-river-basin>.

<sup>162</sup> DEIS at E-55.

<sup>163</sup> NEPA DEIS at K-66.

<sup>164</sup> SEPA DEIS at L-24.

<sup>165</sup> NEPA DEIS at K-66.

<sup>166</sup> This is an example of “shifting baselines”—when each new generation of scientists starts their careers observing wild populations that look normal to them, but that would look very small to prior generations of scientists. Daniel Pauly, *Anecdotes and the shifting baseline syndrome of fisheries*, 10 TRENDS IN ECOLOGY AND EVOLUTION 430 (1995).

<sup>167</sup> NEPA DEIS at ES-7.

<sup>168</sup> *Id.*

projected to increase.”<sup>169</sup> Average annual temperatures will increase 3.3°F to 9.7°F by 2070 to 2099, compared with the period of 1970 to 1999.<sup>170</sup> This is a steep increase in a short amount of time.

Temperature increases will cause more precipitation to fall as rain instead of snow during cold months,<sup>171</sup> which will have several consequences.<sup>172</sup> More water will flow into streams earlier in the spring and less in the late summer, moving the hydrograph curve earlier in the agricultural season.<sup>173</sup> The NEPA DEIS estimates that operation of the dam to retain floodwaters would occur once every seven years, but it is very likely that changes in precipitation patterns would result in the dam operating more often than projected.

For salmon in the Chehalis River, all observers agree that the prognosis is only worsening. One article reports that “[a]ccording to the state Department of Fish and Wildlife and other Chehalis observers, climate change is a major culprit in the salmon’s decline. In a January 2019 presentation in Centralia, state experts noted that only 25% of the Chehalis River Basin retains optimal temperatures for coho salmon.<sup>174</sup> That is expected to decrease to 6% by 2040 and to 2% by 2080.”<sup>175</sup> To repeat: already, only 25% of the basin retains optimal temperature, and it is dropping precipitously.<sup>176</sup> This is a lethal state of affairs. And these are the conditions *without* the proposed dam and associated removal of 600 acres of vegetation,<sup>177</sup> which would increase the temperature of the Chehalis River both upstream and downstream of the proposed dam site, further reducing the fraction of the river system with optimal temperatures for salmonids.<sup>178</sup>

Salmon need cold, flowing water to survive. When rivers run low, their temperatures increase and create environments where fish diseases can fester and spread.<sup>179</sup> Lower stream levels and increased water temperatures have led to enormous salmon die-offs in the Columbia River, especially during the 2015 drought when almost the entire sockeye salmon run died.<sup>180</sup> Future

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<sup>169</sup> Charles Luce et al., *Northwest*, in *IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME II 1042* (D. R. Reidmiller et al., eds.) (2018).

<sup>170</sup> U.S. GLOBAL CHANGE RESEARCH PROGRAM, *NORTHWEST: PROJECTED CLIMATE CHANGE, NATIONAL CLIMATE ASSESSMENT* (2014), <https://nca2014.globalchange.gov/report/regions/northwest>.

<sup>171</sup> Luce et al., *Northwest*, *FOURTH NATIONAL CLIMATE ASSESSMENT 1054* (2018).

<sup>172</sup> WASH. DEP’T OF ECOLOGY, *PREPARING FOR CLIMATE CHANGE: WASHINGTON STATE’S INTEGRATED CLIMATE RESPONSE STRATEGY*, Pub. No. 12-01-004, 37 (Apr. 2012).

<sup>173</sup> UW CLIMATE IMPACTS GROUP, *CLIMATE CHANGE: OBSERVED CHANGES IN THE CLIMATE*, <https://cig.uw.edu/learn/climate-change/>.

<sup>174</sup> John Stang, *Will Flood Protection Set Back Salmon Restoration in the Chehalis River Basin?*, *CROSSCUT* (Feb. 12, 2020), <https://crosscut.com/2020/02/will-flood-protections-set-back-salmon-restoration-chehalis-river-basin>.

<sup>175</sup> *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> Large trees (greater than 6-inch diameter) and non-flood tolerant trees would be removed in the reservoir and construction area – “affecting over 600 acres of upland, riparian, and wetland areas” SEPA DEIS at E-102.

<sup>178</sup> *Id.*

<sup>179</sup> See, e.g., Anna V. Smith, *How the Yurok Tribe Is Reclaiming the Klamath River*, *HIGH COUNTRY NEWS 11* (June 11, 2018), <https://www.hcn.org/issues/50.10/tribal-affairs-how-the-yurok-tribe-is-reclaiming-the-klamath-river> [<https://perma.cc/E42Z-3835>] (describing how in 2002, 34,000 salmon died in the Klamath River because “the federal government had capitulated to public pressure from farmers and ranchers in the Klamath Basin and diverted water from the river to irrigate fields. The resulting low flows created a marine environment where fatal diseases could fester.”).

<sup>180</sup> Luce et al., *Northwest*, *FOURTH NATIONAL CLIMATE ASSESSMENT 1067* (2018).

climate change scenarios, extensively researched, demonstrate that invasion and expansion of non-native species will increase.<sup>181</sup> These habitat changes will give non-native fish a competitive advantage, and some will become predators of native species.<sup>182</sup>

In sum, higher water temperatures are here and will continue to increase, and these temperatures kill salmon independently and by fostering ecological conditions that lead to premature salmon deaths. Proposals for flood management in the Chehalis Basin should aggressively mitigate these harmful outcomes rather than exacerbating them.

Further, the “full implications of ocean acidification on salmon are not known at this time.”<sup>183</sup> The NEPA DEIS completely fails to mention ocean acidification. Acidification should be considered as part of anticipated climate change effects, because it would most likely compound the negative effects of higher stream temperatures and bring salmonid survival rates even lower. Lower ocean survival makes it even more critical that salmon are protected during their time in fresh water.

## **X. The NEPA DEIS Should Have Studied A Local Action Alternative**

### *A Local Action Alternative*

The SEPA DEIS expressly studied a local action alternative—not the expandable dam, not the non-expandable dam, and not the no-action alternative, but an entirely different possibility for approaching flood management in the Chehalis Basin. In the SEPA DEIS, the “Local Actions Alternative considers a variety of local-scale actions that approximate the Applicant’s objective through improving floodplain function, land use management actions, buying out at-risk properties or structures, floodproofing buildings, channel migration protection, improving early flood warning systems, and increasing water storage from Pe Ell to Centralia through floodplain storage improvement.”<sup>184</sup> The NEPA EIS should analyze this option, and the Applicant should pursue these local actions rather than a dam.

Flooding in the Chehalis Basin is a devastating problem. Most recently, a flood in 2007 sparked the conversation that has led to this DEIS, but the causes are older than 2007, and multifaceted. For example, local leader and dairy farmer W. Jay Gordon explained to the New York Times that the causation of the floods and the tension around solutions for them is “not just logging. It’s not just farming. It’s not just development, and it’s not just environmentalists.”<sup>185</sup> Making the Chehalis Basin more flood resilient requires solutions as complex as the causes of the flooding.

A one-size-fits-all dam is tempting in its seeming simplicity but is a mirage of a solution. A dam would not effectively protect residents and livestock in the Chehalis Basin, and it would have devastating consequences for legally protected fishing economies. A Local Action alternative

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<sup>181</sup> SEPA DEIS at E-58 (citing Lawrence et al. 2012, Lawrence et al. 2014, Rubenson and Olden 2019).

<sup>182</sup> SEPA DEIS at E-58.

<sup>183</sup> SEPA DEIS at E-59.

<sup>184</sup> SEPA DEIS at v.

<sup>185</sup> William Yardley, *Anger and Blame After Deadly Flood in Northwest*, NEW YORK TIMES (Jan. 3, 2008), <https://www.nytimes.com/2008/01/03/us/03flood.html> (quoting W. Jay Gordon).

such as that described in the SEPA process is the only one that could result in compliance with tribal treaty rights, the Endangered Species Act, and other state protections for threatened species.

The Local Action alternative is also clearly the most cost-effective, despite a dearth of attention paid to budget analysis of this alternative. At a point in history when our state's budget may take decades to recover from the impact of coronavirus, it is not the time to engage in a dam construction project that would likely to lead to cost overruns in the millions of dollars.<sup>186</sup>

Development in the floodplain is one contributing cause of the severity of Chehalis floods. In 2007, the Seattle Times talked to a University of Washington scientist about how development can contribute to increased flooding impacts:

While individual filling projects might not appear to have an impact, the cumulative effect of repeated development in a floodplain can mean big trouble, the experts argue. It's like putting bricks in a bathtub. One brick displaces a little water. But a lot of bricks can force the tub to overflow. 'The more stuff you put in a flood plain, the higher the water the will rise,' said David Montgomery, a scientist at the University of Washington who has studied the history of rivers in Western Washington.<sup>187</sup>

CELP expressed its concern about this four years ago, in comments on the SEPA Draft Programmatic EIS for the Chehalis Basin. At that time, we commented that “building a dam would almost certainly promote development of the floodplains downstream—just as it has on the Green and Puyallup Rivers.” This would in turn create pressure to ensure that the new development would be protected from the flood risk remaining in the landscape.

More development in the basin would also stress the existing system of water rights. The Chehalis Basin is over-appropriated, so creating a situation that fosters development would threaten senior water rights, instream flows, and Indian federal reserved water rights by encouraging proliferation of permit-exempt wells. Instead of building in the floodplain and infringing on senior water rights, building outside of the floodplain would avoid the risk of flood damage and require no maintenance.

Flooding is not bad in itself; the negative human impacts are. Floods recharge groundwater and are essential to the overall ecology of the Chehalis Basin.<sup>188</sup> Since floods provide ecological benefits, the goal should be to reduce exposure to flood damage (e.g. by raising and relocating buildings), not to reduce flooding itself. The focus should be on eliminating the human cost of floods, rather than the floods themselves. In sum, the proposed dam would not solve the flooding problem, nor would a future expanded dam. Local actions for flood resilience is a more effective

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<sup>186</sup> Atif Ansar et al., *Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development*, 69 ENERGY POL'Y 43 (2014). (studying hydropower dams and concluding in general that cost “[e]stimates are systematically and severely biased below actual values,” and “[p]rojects that take longer have greater cost overruns; bigger projects take longer.”).

<sup>187</sup> Lynda V. Mapes, *Did Development, Logging Set The State for Disaster?*, SEATTLE TIMES (Dec. 9, 2007), <https://www.seattletimes.com/seattle-news/did-development-logging-set-the-stage-for-disaster/>.

<sup>188</sup> See NEPA DEIS at 45.

way to reach a solution that aids farmers and homeowners in the Chehalis Basin,<sup>189</sup> and deserves further study in the NEPA EIS.

### *Economic Advantage of Wetland Conservation & Restoration*

A comparative approach throws the short-sightedness of this dam proposal into greater relief. For example, experience in California's Sacramento Valley demonstrates that "alternative flood control systems can be designed without eliminating floodplain function and processes."<sup>190</sup> Their Yolo Bypass was "engineered to allow Sacramento Valley floodwaters to inundate a broad floodplain" of agricultural lands and seasonal and permanent wetlands.<sup>191</sup> The 24,000 hectare floodplain can convey "up to 80% of the flow of the Sacramento River basin during high water events."<sup>192</sup> Finding a comparable solution for the Chehalis Basin would require adapting floodplain solutions to its unique needs, but the Sacramento study demonstrates that this approach can succeed.

Similarly, a study of the Smith Creek Basin in Saskatchewan, Canada demonstrated that "wetland retention is an economically viable solution to limit the financial, social and environmental damages of flooding."<sup>193</sup> Draining wetlands increases downstream flood damage to local infrastructure and agriculture.<sup>194</sup> Conversely, retaining existing wetlands in that basin provides a social return on investment ratio of 7.7.<sup>195</sup> General flood management services provided by all types of wetlands give a social return on investment ratio of 3.17.<sup>196</sup> Wetlands and other ecological systems for building flood resilience make good economic sense.

Finally, a study of the Mississippi Basin demonstrated how building flood control infrastructure can backfire.<sup>197</sup> Despite a "massive effort" throughout the 20th century to build levees in the upper Mississippi Basin, mean annual flood damage "increased 140% during that time."<sup>198</sup> Given their study, the scientists suggested that it was:

[T]ime to develop a comprehensive flood management strategy that includes using wetlands to intercept and hold precipitation where it falls and store flood waters where they occur. History testifies to the truth of this premise: it was the rampant drainage of wetlands in the nineteenth century that gave rise to many of today's water resources management problems.<sup>199</sup>

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<sup>189</sup> See *infra*, Section X.

<sup>190</sup> See, e.g., Ted Sommer et al., *California's Yolo Bypass: Evidence That Flood Control Can Be Compatible with Fisheries, Wetlands, Wildlife, and Agriculture*, 26 FISHERIES 6 (2011).

<sup>191</sup> *Id.*

<sup>192</sup> *Id.*

<sup>193</sup> John K. Pattison-Williams et al., *Wetlands, Flood Control and Ecosystem Services in the Smith Creek Drainage Basin: A Case Study in Saskatchewan, Canada*, 147 ECOLOGICAL ECONOMICS 36 (2018).

<sup>194</sup> *Id.*

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> Donald L. Hey & Nancy S. Philippi, *Flood Reduction Through Wetland Restoration: The Upper Mississippi River Basin as a Case History*, 3 RESTORATION ECOLOGY 4 (1995).

<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

Restoring and maintaining wetlands is a powerful tool. In general, less harmful and simpler solutions abound. For example, a substantial portion of projected future flood damage could be reduced simply by increasing freeboard height, or elevation of structures.<sup>200</sup> Likewise, in the SEPA process, the “2017 Programmatic EIS stated that 75% of the residential structures and 25% of the commercial, industrial, and other non-residential structures in the Chehalis River floodplain could be protected through elevation, other floodproofing measures, and buy-outs.”<sup>201</sup> These ecologically compatible solutions are far superior to reducing floodplain resilience by removing wetlands,<sup>202</sup> which would impact multiple species in addition to reducing the flood capacity of the basin.

The Wild Salmon Center has suggested more effective long-term solutions for flooding that would also protect the river’s salmon runs, which include restoring natural floodplain function:

Restoring natural floodplain function to the Upper Chehalis means investing in habitat restoration, culvert removal, and de-channelization where the river has been artificially narrowed. We also need to be smart about development within the floodplain: discouraging more infill and hard surfaces, encouraging voluntary buy-outs, conservation easements, and sensible ways to move people and structures out of harm’s way.<sup>203</sup>

The dam would be a massive step in the wrong direction for building flood resilience. The SEPA DEIS found that building the dam would result in “the loss of ecological function across up to 847 acres of upland, wetland, and riparian vegetation communities from reoccurring inundation events that will result in sediment deposition, channel widening, channel migration, and future colonization by invasive vegetation.”<sup>204</sup> Wetlands are the kidneys of the landscape. Losing them means losing their massive ecosystem services and filtration abilities, which means losing ecological resilience at a moment in human history when we need it more than ever.

### *Design for Landscape Resilience*

Dams are a static solution to a dynamic problem. Rivers are alive in more ways than one. They move, change in size, and more. This is normal and necessary.<sup>205</sup> For decades, engineers and landscape designers have been studying how to design with rivers.<sup>206</sup> Similarly, hazard planners have worked with governments, including the United States, to develop landscape-based solutions to environmental risks.<sup>207</sup>

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<sup>200</sup> SEPA DEIS at 120.

<sup>201</sup> SEPA DEIS at 121.

<sup>202</sup> SEPA DEIS at E-24.

<sup>203</sup> CHEHALIS RIVER, WILD SALMON CENTER, <https://www.wildsalmoncenter.org/campaigns/chehalis-river/>.

<sup>204</sup> SEPA DEIS at E-122.

<sup>205</sup> Dorothy Mulkern, landscape architect/urban planner, personal communication (May 7, 2020).

<sup>206</sup> See, e.g., DONALD WATSON & MICHELE C. ADAMS, DESIGN FOR FLOODING: ARCHITECTURE, LANDSCAPE, AND URBAN DESIGN FOR RESILIENCE TO FLOODING AND CLIMATE CHANGE (2011).

<sup>207</sup> See, e.g., Robert C. Freitag, Daniel B. Abramson, Manish Chalana, & Maximilian Dixon, *Whole Community Resilience: An Asset-Based Approach to Enhancing Adaptive Capacity before a Disruption*, 80 J. AM. PLANNING ASS’N, 324–35 (2014).

According to landscape architects Watson & Adams, the “first step in resilient design for inland flooding is to identify and map areas of any existing natural features . . . that provide ecosystem services in absorbing rainfall.”<sup>208</sup> The next step is to develop “a plan that protects or restores these features.”<sup>209</sup> In performing both of these steps, the authors urge that special attention be dedicated to flow pathways of water, wetlands and the conversion of surface water to groundwater, native vegetation, geology and soils underlying water movement, and connectivity for native plants and wildlife.<sup>210</sup> In general, landscapes will be less flood-prone if they have less impervious land cover like asphalt. Porous pavement with infiltration beds can enable car travel and parking without contributing to water buildup during high flow events.<sup>211</sup>

During extreme rainfall events, the “capacity of any system, natural or man-made, to hold water will eventually be exceeded, and water will move downstream.”<sup>212</sup> In a natural system, the rate the water moves downstream is “buffered by wetlands, riparian buffers, and floodplains.”<sup>213</sup> These do two things: capture the volume of water, and slow the velocity at which it flows.<sup>214</sup>

When these assets are considered holistically, emergency planning becomes more resilient.<sup>215</sup> One University of Washington professor led a study to strengthen the Federal Emergency Management Agency (FEMA)’s process in Washington for hazard mitigation and recovery planning. Normally, hazard planning begins and ends with analyzing a hazard scenario and its effect on the built environment.<sup>216</sup> But when stakeholders begin by identifying built, natural, and social assets that contribute to human wellbeing before introducing the hazard scenario, a more realistic picture emerges. In the study, stakeholders also identified assets that could help them adapt to a new normal—neighborhood level social connections were a top priority.<sup>217</sup> This kind of planning identifies assets for resilience as well as assets that could aid in future adaptation following an emergency.<sup>218</sup>

In sum, these are precisely the kind of adaptations that should be studied as part of a NEPA Local Action alternative. Resilient landscape design focuses on solutions that can be long-lasting, in contrast to the proposed dam with, for example, fish passage that would require funding and staff for operation of the trap and haul system in perpetuity. For policymakers to make a robustly informed decision on the Applicant’s dam proposal, these alternatives must be better explored.

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<sup>208</sup> DONALD WATSON & MICHELE C. ADAMS, DESIGN FOR FLOODING: ARCHITECTURE, LANDSCAPE, AND URBAN DESIGN FOR RESILIENCE TO FLOODING AND CLIMATE CHANGE 103 (2011).

<sup>209</sup> *Id.*

<sup>210</sup> *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> *Id.* at 119.

<sup>213</sup> *Id.*

<sup>214</sup> *Id.*

<sup>215</sup> Freitag at 324.

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*

<sup>218</sup> *Id.*

## XI. Concluding Summary

The proposed Chehalis River dam described in the NEPA DEIS would not effectively manage floods: in a late-century catastrophic flood scenario, the dam would protect less than half of existing structures. In return, the dam would be a disaster for salmon, trout, and other fish already stressed by climate change, as well as creatures that rely on those fish, like endangered Southern Resident Killer Whales. The mitigation proposed for these negative impacts is largely speculative. Further, the DEIS violates NEPA by falsely segmenting the environmental analysis for an “expandable” dam. In its final EIS, the Army Corps should include climate change in its modeling and seriously consider a “local action” alternative. Building any dam would make no practical, environmental, or economic sense, and would violate the U.S. Government's legal obligations under treaties with Indian nations, which have the status of federal law, and the Endangered Species Act. Instead, the Army Corps should foster wetland restoration and other resilient designs to make the floodplain safer for people.

Please do not hesitate to contact CELP if you have questions about the above or would like any clarifications. Thank you again for accepting these comments.

Best Regards,

A handwritten signature in black ink that reads "Trish Rolfe". The signature is written in a cursive, flowing style.

Trish Rolfe  
Executive Director, The Center for Environmental Law & Policy

**From:** [Susan Andersson](#)  
**To:** [Chehalis](#)  
**Subject:** [Non-DoD Source] Re: Chehalis River Basin Flood Damage Reduction Project NEPA Draft Environmental Impact Statement  
**Date:** Tuesday, November 17, 2020 7:47:36 PM  
**Attachments:** [BOLD-comment-letter Chehalis-NEPA-DEIS.2.docx](#)

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**To: Brandon Clinton**  
**Corps EIS Project Manager**

**Nov.17, 2020**

Dear Brandon,

Please accept the attached comment letter regarding the **Chehalis River Basin Flood Damage Reduction Project NEPA Draft environmental Impact Statement**. The online portal at [Chehalisbasinstrategy.com](#) appears to be down. We thank you for the opportunity to comment. Our BOLD group is a partnership consisting of representatives from Orca Behavior Institute, Orca Network, Salish Sea Ecosystem Advocates and Whale Scout. We are an advocacy group that helps the public understand various issues impacting the endangered Southern Resident orcas, and encourages their involvement and engagement in comment opportunities.

Sincerely,

Cindy Hansen and Amanda Colbert, Orca Network  
Susan Andersson, Salish Sea Ecosystem Advocates  
Monika Wieland Shields, Orca Behavior Institute  
Whitney Neugebauer, Whale Scout

11-17-2020

Brandon Clinton  
Corps EIS Project Manager  
*Submitted via online portal*

**Re: Chehalis River Basin Flood Damage Reduction Project NEPA Draft Environmental Impact Statement**

Thank you for the opportunity to comment on the Chehalis River Basin Flood Damage Reduction Project (Proposed Project) Draft Environmental Impact Statement (DEIS.) BOLD is a partnership consisting of representatives from Orca Behavior Institute, Orca Network, Salish Sea Ecosystem Advocates and Whale Scout. We are an advocacy group that helps the public understand various issues impacting the endangered Southern Resident orcas, and encourages their involvement and engagement in comment opportunities. While we recognize that flooding in the Chehalis Basin poses a risk to homes and livelihoods and are sympathetic to those who have been impacted in the past, we feel the construction of a flood retention facility and associated temporary reservoir in the Chehalis River poses an unacceptable risk to tribal culture, salmon, and Southern Resident orcas. We urge the Army Corps of Engineers (Corps) to adopt the No Action Alternative for this project.

**Impacts to the Chehalis Watershed**

The Chehalis River is the second largest river in Washington State, the largest watershed entirely within Washington. The Proposed Project would drown 6 miles of critical salmon and steelhead habitat, result in increased temperature and decreased dissolved oxygen, and permanently eliminate 11 acres of wetlands, 333 acres of wetland buffers, 17 miles of streams, 441 acres of stream buffers and 0.3 acres of the Chehalis River.<sup>1</sup>

**Impacts to Chehalis Basin Salmon**

Chehalis Basin salmon are not currently listed as threatened or endangered under the U.S. Endangered Species Act (ESA)<sup>2</sup>, however, they have declined 50 to 80% from historic numbers due to overfishing, unregulated timber harvest, and habitat destruction.<sup>3</sup> The Proposed Project would put these already declining salmon populations at further risk. The Chehalis Basin supports spawning of four species of salmon during most of the year. A Washington Department of Fish and Wildlife (WDFW) 2017 report stated that “all four species of salmonids could be affected with the introduction of a dam that creates an inundation footprint the size of the flood retention flow augmentation dam alternative.”<sup>4</sup> Another WDFW report from May 2018 stated that “valuable juvenile salmon and steelhead habitat, which is already limited in the Chehalis River, is likely to be negatively impacted by the construction of a dam and result in negative ramifications on the freshwater rearing portion of salmon and steelhead life cycles in this part of the river.”<sup>5</sup> The Proposed Project would also affect the genetic diversity of Chehalis Basin salmon stocks. The DEIS notes that there will be high impacts to genetically distinct spring-run Chinook, due to their small population size and few spawning areas, many of which are located in the area of the Proposed Project. Modeling shows that operation of the flood retention

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<sup>1</sup> Proposed Chehalis River Basin Flood Damage Reduction Project, 2020

<sup>2</sup> <https://chehalisbasinpartnership.org>

<sup>3</sup> [www.chehalisleadentity.org](http://www.chehalisleadentity.org)

<sup>4</sup> Ashcraft, S., C. Holt, M. Zimmerman, M. Scharpf, and N. Vanbuskirk. 2017. Final Report: Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2013-2017, FPT 17-12. Washington Department of Fish and Wildlife, Olympia, Washington.

<sup>5</sup> Winkowski, J.J., E.J. Walther, and M.S. Zimmerman. 2018. Summer riverscape patterns of fish, habitat, and temperature across the Chehalis River basin. Washington Department of Fish and Wildlife. Olympia, Washington. FPT 18-01.

facility would reduce the population of spring-run Chinook to fewer than twenty fish by mid-century, “putting it at risk for permanent loss in this area.”<sup>6</sup>

The DEIS does not incorporate climate change models and therefore is unable to accurately predict future flooding in the Chehalis Basin and climate change impacts to salmon. Increasing ocean warming and acidification, and lower streamflows—all results of climate change—can limit the survival of salmon. Climate change can cause changes in precipitation, lower summer streamflow, and increasing water temperatures, which can decrease habitat, impede migration, and increase disease susceptibility and vulnerability to predation.<sup>7</sup>

### **Impacts to Southern Resident Orcas**

The DEIS states that Southern Resident orcas may experience low impacts from the slight decreases in abundance of salmon, and that it is likely they would lose a small portion of their prey. Southern Residents are a highly endangered population and they are dependent on abundant and available salmon throughout their range. Chinook salmon from the Chehalis River are part of the Washington Coast stock which is listed as a priority stock for these orcas.<sup>8</sup> Salmon depletion has led to changes in their social structure, decrease in presence in their core summer feeding areas, an increase in stress hormones and a miscarriage rate of almost 70%.<sup>9</sup> Any further decrease in salmon will result in much more than a “low impact.”

Southern Resident orcas are a genetically, acoustically, socially, and culturally distinct population of orcas. Despite recovery actions initiated by their listing under the U.S. Endangered Species Act in 2005, they are continuing to decline. The population is currently at just 74 animals, their lowest number in four decades.<sup>10</sup> Their main threats include a decline in Chinook salmon, environmental contaminants, vessel effects and sound, as well as increased potential for oil spills and disease.<sup>11</sup> Of these threats, lack of prey throughout their range is widely recognized as the principal limiting factor in their recovery.

Data from the National Oceanic and Atmospheric Administration (NOAA) collected from satellite-tagging studies, dedicated surveys, and passive acoustic monitoring, establishes that all three pods in the Southern Resident population use the coastal waters of Washington year-round and continue to target Chinook salmon as their primary prey.<sup>12</sup> This data indicates that of the time Southern Resident orcas spend in coastal waters, approximately 50% is spent off the coast of Washington and this has been identified as a high-use foraging area for the population.<sup>13</sup> The data also shows that Southern Resident orcas are feeding off Grays Harbor. A NOAA satellite tagging data blog post from April 30, 2015 shows that members of L Pod were off Grays Harbor for several days.<sup>14</sup>

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<sup>6</sup> Thompson et al. 2019. Run-type genetic markers and genomic data provide insight for monitoring spring-run Chinook Salmon in the Chehalis Basin, WDFW contract #18-11697; NEPA DEIS at 4.2.222

<sup>7</sup> Southern Resident Orca Task Force Final Report and Recommendations. November 2019.

<sup>8</sup> NOAA Fisheries and Washington Department of Fish and Wildlife 2018. Southern Resident Killer Whale Priority Chinook Stocks Report

<sup>9</sup> Data from the Center for Whale Research; Shields, M.W. et al. 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (*Orcinus orca*).

<sup>10</sup> Population data from Center for Whale Research, [www.whaleresearch.com](http://www.whaleresearch.com)

<sup>11</sup> National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington

<sup>12</sup> Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: <https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale>

<sup>13</sup> Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data.

<sup>14</sup> Map and tagging data from Northwest Fisheries Science Center satellite tagging blog, per <https://www.usa.gov/government-works>



Figure 1 (above): Satellite-tagging data from 2015 shows Southern Resident orcas traveling between Grays Harbor and the Columbia River.<sup>15</sup>

A 2018 paper from Orca Behavior Institute showed that decreased spring usage of the Salish Sea by Southern Resident orcas correlates with declines in Fraser River Chinook salmon.<sup>16</sup> Their use of this core summer habitat has continued to decrease with the lack of prey. There was not a single inland sighting of Southern Resident orcas in June 2019 for the first time on record. In 2020 there was not an inland sighting throughout the month of May. Observations from the Center for Whale Research and Canada’s Department of Fisheries and Oceans has shown the Southern Resident orcas to be foraging off the coast during the summer months in recent years. This change in habitat use shows that they will adapt their foraging patterns when food becomes scarce. With Fraser River salmon runs continuing to decline, the coastal salmon runs, such as the Chehalis, will likely become more important to the immediate survival and eventual recovery of the Southern Resident orca community.

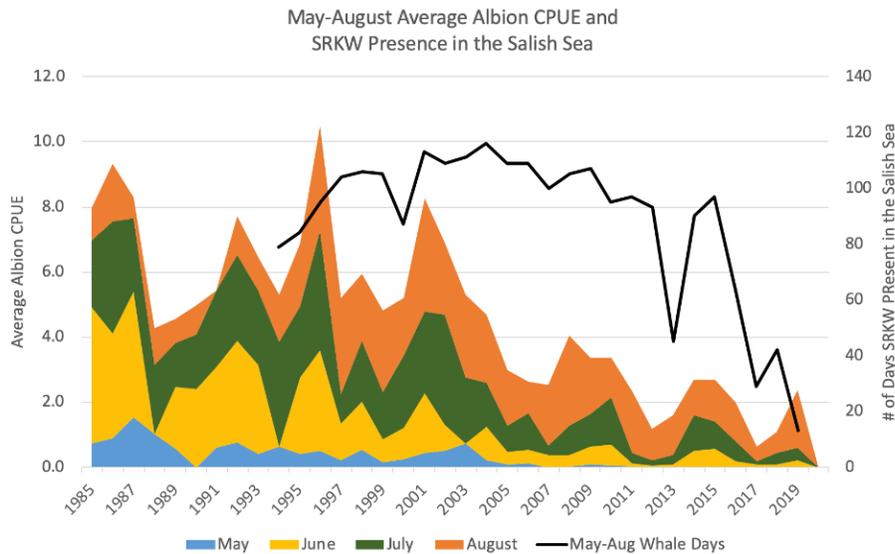


Figure 2 (above): Orca Behavior Institute graph showing Southern Resident orca presence in the Salish Sea compared with Albion Test Fishery data on Chinook salmon returning to the Fraser River.

<sup>15</sup> Ibid

<sup>16</sup> Shields, Monika W. et al, 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey.

Impacts to river ecosystems from dams are well documented. These include disruptions to sediment, changes in water quality, increased water temperatures, blocking passage to salmon spawning habitat, and impeding salmon migration.<sup>17</sup> This has been seen in past projects throughout Washington State including dams on the Snake, Elwha, Nooksack, and Pilchuck Rivers, which have decimated salmon runs.<sup>18</sup> Washington has been moving to an era of dam removal, with the Elwha and Glines Canyon dams coming down in 2011 and 2014<sup>19</sup>, and the Nooksack and Pilchuck removal projects in 2020.<sup>20</sup> The Chehalis is one of the only remaining free flowing rivers on the west coast that still produces wild salmon stocks. We cannot support the construction of a facility that would have known effects on water quality, salmon, and Southern Resident orcas.

Opposition to the Proposed Project is growing, as organizations and agencies are encouraging different alternatives. At its May 20th meeting, the Chehalis Basin Board voted to explore other options for flood reduction and mitigation.<sup>21</sup> On July 22nd, Washington's Governor Inslee sent letters to the Chehalis Basin Board and Washington Departments of Ecology and Fish and Wildlife, directing them to work with local tribes to develop non-dam alternatives, and to pause the EIS process for the remainder of the year.<sup>22</sup> In a new flood policy, the Federal Emergency Management Agency has taken steps to encourage environmentally friendly features such as wetlands instead of building seawalls and levees.<sup>23</sup>

The BOLD partners are opposed to the construction of a flood retention facility and associated temporary reservoir in the Chehalis River. We stand with the Quinault Nation and the Confederated Tribes of the Chehalis Reservation in their opposition to this project, which would impact their cultural way of life. We are sympathetic to those whose lives have been affected by flooding in the Chehalis Basin but the Proposed Plan poses unacceptable risks, and we urge the Corp to adopt the No Action Alternative. Instead, we support a Washington State plan that will mitigate flood damage through smart development and river restoration without further endangering salmon and Southern Resident orcas.

Sincerely,

Cindy Hansen and Amanda Colbert, Orca Network

Susan Andersson, Salish Sea Ecosystem Advocates

Monika Wieland Shields, Orca Behavior Institute

Whitney Neugebauer, Whale Scout



<sup>17</sup> Pess, et al. 2008. *Biological Impacts of the Elwha River Dams and Potential Salmonid Responses to Dam Removal*.

<sup>18</sup> *Ibid*; Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. *N. Am. Journal of Fisheries Management*. <https://www.seattletimes.com/seattle-news/environment/another-washington-dam-removal-and-37-more-miles-of-salmon-habitat-restored/>

<sup>19</sup> <https://www.nps.gov/olym/learn/nature/elwha-ecosystem-restoration.htm#>

<sup>20</sup> <https://nwtreatytribes.org/long-awaited-dam-removals-open-up-salmon-habitat/>

<sup>21</sup> Dodgson, C. "Office Of The Chehalis Basin Board to Look at Flood Reduction Options Other Than Dam" *The Daily Chronicle*, May 8, 2020. [http://www.chronline.com/news/office-of-the-chehalis-basin-board-to-look-at-flood-reduction-options-other-than-dam/article\\_b63ce07a-9148-11ea-984d-338187b4f242.html](http://www.chronline.com/news/office-of-the-chehalis-basin-board-to-look-at-flood-reduction-options-other-than-dam/article_b63ce07a-9148-11ea-984d-338187b4f242.html)

<sup>22</sup> <https://www.kuow.org/stories/inslee-puts-proposed-chehalis-river-dam-on-hold-calls-for-non-dam-options>

<sup>23</sup> <https://www.eenews.net/stories/1063716253>



**From:** [Jay Gordon](#)  
**To:** [Chehalis](#)  
**Cc:** [Chehalis](#); [Clinton, Brandon C CIV USARMY CENWS \(USA\)](#)  
**Subject:** [Non-DoD Source] comments on NEPA EIS on behalf of Washington Dairy Federation  
**Date:** Tuesday, November 17, 2020 8:17:47 PM  
**Attachments:** [2020.11.17 Comments on EIS Chehalis FRE-1.docx](#)

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Please see attached,  
on behalf of the Washington State Dairy Federation .  
Thanks.

*Jay Gordon*

Policy Director  
Washington State Dairy Federation  
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## Washington State Dairy Federation

November 17<sup>th</sup> 2020

To: Brandon Clinton, Project Manager, US Army Corps of Engineers, Seattle District

From: Washington State Dairy Federation

Re: Comments on Chehalis River Basin Flood Damage Reduction Project

We would like to begin our comments with a “thank you” to the Seattle office of the U.S. Corps of Engineers for your work to put together a very detailed Environmental Impact Statement (EIS) on the proposal submitted by the Chehalis Basin Flood Control Zone District. There is a staggering amount of information and detail in this work and your staff deserves commendation. Thank you.

Right up front and to leave no doubt, we ask your agency to approve and issue a **decision to authorize** Alternative 1 – Flood Retention Expandable (FRE) - as evaluated in your EIS, as proposed by the Chehalis Flood Control District. Proposed Alternative 1 is one of the major actions of a comprehensive Basin-wide plan. When paired with efforts to improve the aquatic species in the Chehalis Basin, we believe it is likely the only viable option for significantly reducing flood levels and damage that our basin has experienced in the past 30 years and likely will experience in the future. We will elaborate more on our reasons for requesting this affirmation after a bit of background

Our Association has represented the interests of dairy farmers in Washington State since 1892. Our Association – staff and members- along with Washington Farm Bureau, state and federal agencies and hundreds of volunteers worked for months assisting farmers (including the 29 dairy farms) in the Chehalis Basin after the flood in 2007. Unfortunately for some of our Chehalis farmers, that flood destroyed their farms and homes. Several lost most or all their cows in the flood waters. Three farms never rebuilt and three more spent years piecing their farms back together, most farms along the valley floor were damaged in one way or another. We can relay to your team, the farmers who lived through the last three big floods, live knowing every winter brings another chance their homes and hard work will again wash away.

The farmers of this valley have seen floods come and go for generations, but since the early 1990's the flooding has increased, and the damages have become more severe and more frequent as the flood waters reach new heights. Sadly, our farmers have grown tired of waiting for solutions, so we view this EIS as a bright spot in a multi-decade discussion of what to do about flooding in the Chehalis. Some farmers report the 'flood discussion' started in the mid 1930's after the floods of '33 and '34. The overwhelming desire of our farmers is that we reach an end to the talking and move to action.

This EIS gives detailed reasons to support the proposed Alternative 1 and shows the structure can be built and reduce flood damages. While there are minimal impacts, they can be abated or mitigated. While the Corps EIS cannot and did not evaluate the entire comprehensive Basin wide plan, we believe there is only pathway forward for our Chehalis Valley community.

That pathway must include prudent flood retention in combination with local actions, sensible land use, smart forestry practices and an extensive Aquatic Species Restoration effort. We firmly believe this flood retention structure will have minimal environmental impacts. When viewed as part of the whole plan for flood damage reduction and aquatic species restoration, we will have a basin plan that leads to actions that will be a success story, a story we long to tell our grandchildren about how the people of the Chehalis did this one right.

Thank you for the extensive review of 61 alternatives. This basin has been extensively studied.

It is clear our community has had plenty of talented help to explore flood reduction options over the past 40 years.

Your analysis shows it will reduce damages. Alternatively, none of the other alternatives will reduce damages without also causing unacceptable impacts.

The people of this basin wish to address flooding in a way that does not cause undo damages to our environment or to other people in the valley.

We especially want to thank your team for evaluating alternatives and rejecting those that merely push the problem onto others (page 23).

We have supported a basin wide solution for the past 10 years as the only pathway forward. Most local governments in the basin have passed resolutions to support of the idea of a basin-wide solution.

The NEPA EIS information on impact to salmonids is extensive (section 4.5.3.2, Pages 123-137), however because of the complexity of the impact question, the discussion jumps back and forth between using fish numbers, percentages and descriptive phrases like "much less," "low," "small," "medium," and "high" impact. If there is a way to more clearly explain the impact that would be helpful. For example, by giving the impact in terms of numbers of fish impacted rather than percentages or descriptive term.

While we are a bit uncertain of the precise fish impacts, the EIS overall shows a minimal impact, which makes sense since this facility is located high up in the watershed on one tributary.

We believe if this flood retention structure (FRE, along with the levy work) is combined with a comprehensive aquatic species basin-wide plan, we will have both flood damage reduction and species recovery across the Chehalis Basin that far exceeds the small impact from the flood water retention projects.

Rather than spend more time refining if impacts are to a dozen or two dozen spawners, we believe it prudent to see if the Basin communities have the will to embrace a comprehensive plan to both significantly reduce flooding and increase fish numbers by vastly more than these few fish.

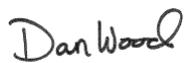
Your EIS did not evaluate the alternatives “in the face of climate change”. We would like to note that Alternative 1 makes even more sense given all the scientific indications of where we are heading with climate change. Reasonable people can look at these last five floods and see in that data an obvious trend in increasing flood and frequency of those floods, beginning with the 1990 flood.

Climatologists tell us to expect more intense rain events from increasing particulates and increasing temperatures. The past thirty years gives us hard data to match that premise. Given modeling, hard data and historical wisdom, it makes sense only to consider a flood retention structure that is expandable. Alternative 1 - the FRE - gives future generations a very sensible option to consider. Doing nothing will result in more damages and a structure that cannot be expanded is imprudent given predicted future conditions.

Finally, as your evaluation makes clear that the choice of doing nothing means flood damages will get worse and fish numbers will continue to decline. The trend for Spring Chinook is especially glum and doing nothing seems to lead to extinction of that run in the Chehalis Basin.

We thank you and your team and again reiterate our support for Alternative 1, the FRE.

Sincerely,

A handwritten signature in black ink that reads "Dan Wood". The signature is written in a cursive style and is positioned above a thin red horizontal line.

Dan Wood, Executive Director

Washington State Dairy Federation

[Dan@WaStateDairy.com](mailto:Dan@WaStateDairy.com)

360-482-3485