



Northwest Indian Fisheries Commission

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May 27, 2020

SEPA Draft EIS for the Chehalis Flood Damage Reduction Project
c/o Anchor QEA
1201 3rd Ave., Suite 2600
Seattle, WA 98101

Re: Northwest Indian Fisheries Commission Comments on the Draft Environmental Impact Statement for the Proposed Chehalis River Basin Flood Damage Reduction Project

Dear Chehalis Basin Flood Control District:

Thank you for the opportunity to provide comments on the State Environmental Policy Act (SEPA) Draft Environmental Impact Statement (DEIS) for the Proposed Chehalis River Basin Flood Damage Reduction Project. The Chehalis River Basin Flood Control Zone District's preferred alternative consists of an expandable flood retention (FRE) facility and temporary reservoir on the Chehalis River near Pe Ell, Washington, and changes to the Chehalis-Centralia Airport levee. The Northwest Indian Fisheries Commission (NWIFC) asserts that the Department of Ecology must deny the proposed preferred alternative under SEPA given the significant adverse environmental, community, and cultural impacts. The NWIFC supports the pursuit of a non-dam alternative that will prevent flood damage in the Chehalis River Basin, while also protecting natural resources and building resilience to the effects of climate change.

The NWIFC is comprised of the 20 treaty Indian tribes in western Washington who have the constitutionally protected, treaty-reserved right to harvest, consume, and manage fish and shellfish in their usual and accustomed areas.¹ This letter is intended to support and complement comments that our member tribes may submit and be subordinate to any recommendations they put forth individually. The NWIFC is providing these comments because the preferred alternative described in the DEIS is incongruent with decades of effort to recover and rebuild our region's salmon populations. Salmon recovery is critical to our ecological, economical, and cultural health. The FRE would have effects far beyond the watershed in which it would be built. It would have significant adverse effects to treaty-protected salmon populations that are also vitally important economically, to the State of Washington, and all along the Pacific Rim from Alaska through Canada to Oregon. These salmon are also critical to the recovery of the endangered southern resident killer whales.

¹ The NWIFC member tribes are the Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh.

The Washington Legislature has directed the Chehalis Basin Board, which oversees the Office of the Chehalis Basin within the Department of Ecology, to develop a strategy to address flood damage and to restore aquatic species habitat in the Chehalis River Basin. The DEIS clearly states that the major concerns in the Chehalis River Basin are flood damage, declining salmon populations, and the negative effects of climate change. Yet the preferred alternative focuses solely on addressing flooding to the great detriment of salmon habitat, aquatic species, and the communities that depend on them.

The proposed FRE represents a dangerous precedent in allowing this severe level of environmental harm and impact to treaty fishing rights to occur without proposing mitigation for those harms. Building dams of this size on salmon producing ecosystems is an outmoded approach to flood control in the face of 21st century challenges such as climate change and population growth. These challenges call for innovative and scientifically sound solutions. It is incongruous to propose this project, which is narrowly focused on flood control, while at the same time the communities of the Chehalis Basin are working with tribes, scientists, and the Chehalis Basin Board to develop the Aquatic Species Restoration Plan (ASRP) that could be part of a program that would successfully protect against flood damage while enhancing salmon recovery and keeping people out of harm's way. The State of Washington, tribal, county, and local governments invest millions of dollars every year on salmon recovery. The proposed FRE flies in the face of the collective goals, planning efforts, and investments that are being made to protect and restore critical habitat. In contrast, the integrated floodplain management alternative listed as the Local Actions Alternative in the DEIS could be consistent with salmon recovery goals and efforts and would be more effective at controlling flood damage in more of the basin. The Local Actions Alternative must be considered separately from the preferred FRE and airport levee alternative and funded for full implementation.

A project with adverse impacts of this magnitude also requires meaningful government-to-government consultation to ensure that all legal responsibilities to tribes are met. Although the DEIS acknowledges that the proposed project would have significant and unavoidable impacts for aquatic habitat, salmon, steelhead, other native fish, freshwater mussels, and native vegetation, the analysis presented underestimates the substantial adverse effects to tribal treaty fishing rights and the economic damage that would ensue. Meaningful government-to-government consultation must occur early enough to allow tribes the time to provide input on the subject matter and to account for each individual tribe's timeline and sovereign process for considering consultation offers. Engagement with tribes, both as domestic sovereigns with treaty-protected rights and as marginalized populations with environmental justice concerns, should occur early and often, both through the formal government-to-government process and informally through community feedback. This DEIS did not do that, but rather deferred that government-to-government process to an unspecified future time. This is concerning to the member tribes of the NWIFC if this deviation from the standard practice of respectful and early

consultation sets a precedent for the how the state intends to address treaty interests for future projects. The NWIFC has identified the following issues of concern with the proposed preferred alternative:

1. Lack of detail of the mitigation for significant adverse effects to the environment;
2. Failure to fully address adverse impacts to fish, other aquatic species, southern resident killer whales, and the riverine ecosystem;
3. Limited assessment of how climate change will alter environmental conditions during the life of the proposed project; and
4. Inadequate analysis of the Local Actions Alternative, an integrated floodplain management approach with far fewer environmental impacts.

1. Lack of Mitigation

The DEIS repeatedly defers mitigation to a later date, but the seriousness of the impacts requires that mitigation measures be developed, proposed, and evaluated at this stage. Without identification of the type, location, and timing of mitigation actions, an accurate and full accounting of the adverse impacts of the proposed project is impossible. Furthermore, without meaningful and feasible mitigation measures, the harm posed by the proposed project would be too great.

Mitigation plans are needed, but not presented, for fish and other aquatic species and habitat; surface water quality; riparian habitat; wetlands and wetland buffers; large woody material; stream and stream buffers; vegetation management; wildlife species and habitat; and landslide stabilization. In fact, the technical feasibility and economic practicality of these unwritten mitigation plans are described as uncertain in the DEIS. Mitigation for adverse impacts to tribes are also deferred to a later date under government-to-government consultation and as part of the permitting process. The DEIS states that there is uncertainty over whether mitigation for significant adverse impacts to tribal resources, including fish, other aquatic species, wildlife, vegetation, would be technically feasible and economically practicable (DEIS, pg. L-36). This acknowledgement alone should render the projects impact as unacceptable.

The SEPA process requires mitigation that is “reasonable and capable of being accomplished” and it must be presented in sufficient detail for permitting decisions to be fully informed of the impacts of the project under consideration.² Thus, it is the responsibility of the State of Washington, as co-manager of the fisheries resources, to use its SEPA authority to deny the proposed project and continue to pursue actions in the Chehalis River Basin that will reduce flood damage while also enhancing aquatic and floodplain habitat. Denial of this project is warranted given the obligation of the State to uphold treaties with tribes.

² RCW 43.21C.060

2. Affected Species and the Riverine Ecosystem

a. Salmon and Steelhead Populations

Dams such as the proposed FRE pose significant barriers to the survival and abundance of salmon species.³ As treaty-protected resources, salmon and steelhead are of vital importance for tribal subsistence, economies, cultures, and spiritual identity. The DEIS presents an array of significant adverse impacts on spring-run chinook salmon, fall-run chinook salmon, coho salmon, and steelhead. The DEIS also states that it is not certain if it is feasible to mitigate the significant adverse impacts to salmon and steelhead (DEIS p.73). For the analysis of salmon populations, the DEIS relies on an Ecosystem Diagnosis and Treatment (EDT) Model and the Integrated EDT-LCM Model. An independent analysis conducted for the Quinault Indian Nation found errors in the model and omissions of key factors such as environmental variability, inter-species and intra-species interactions, and harvest opportunities.⁴ In light of these concerns, this study concludes that the impacts to salmon from the proposed project have been underestimated and that impacts to salmon population viability and structure cannot be mitigated.

While the DEIS uses spawner abundance as a metric for salmon populations, this single parameter does not provide a complete picture of the impacts of the proposed project on genetic diversity. For example, coho and steelhead populations at and above the proposed FRE site are genetically distinct from all other populations in the basin (DEIS. p. E-145). Although these populations do not make up a large proportion of the total number of fish, the genetic diversity they provide is a key component in maintaining viable salmon and steelhead populations under a changing climate.⁵ Construction of the proposed FRE would result in population declines in the subbasin above Crim Creek of 65 percent for coho, 51 percent for steelhead, 52 percent for spring chinook, and 37 percent for fall chinook (DEIS, p. 74).

Spring chinook are facing extirpation from the upper Chehalis River by the middle of the 21st century without concerted efforts for recovery of the run. With the significant adverse effects of the proposed project, the likely outcome is the demise of the entire spring chinook run in the

³ Frank, Derek Red Arrow (2017) "A Hell of a Complex: The Miscarriages of the Federal Hydropower Licensing Regime," American Indian Law Journal: Vol. 6: Iss. 1, Article 5. Available at: <http://digitalcommons.law.seattleu.edu/ailj/vol6/iss1/5>

⁴ Lestelle, L. and G. Morishima. 2020. Technical Report: Review of Impacts on Fish and Fisheries as Presented in the SEPA DEIS Evaluation of Flood Protection in the Chehalis Basin. Prepared for the Quinault Indian Nation. Taholah, WA.

⁵ Hecht, B. C., A. P. Matala, J. E. Hess, and S. R. Narum. 2015. Environmental adaptation in Chinook salmon (*Oncorhynchus tshawytscha*) throughout their North American range. *Molecular Ecology* 24(22):5573-5595.

Chehalis River Basin because of reductions in spawning area, decreased genetic diversity, and the lost possibility of restoration of habitat in the upper basin.⁶ As cited in the Quinault Indian Nation's comments on the DEIS dated May 11, 2020, the Washington State Department of Fish and Wildlife has stated that Chehalis River Basin spring chinook are likely to be listed under the ESA and that a major dam such as the one proposed would exacerbate existing threats to fish, wildlife, and habitat in the basin. However, the real possibility of ESA listing was not addressed in the DEIS.

Fish passage impacts from the construction and operation for the FRE are a major concern primarily due to fish mortality expected from trap and haul operations and a fish passage tunnel. According to the proposed project Description and Alternatives (DEIS Appendix 1, page 1-28), downstream fish passage would not be provided during major floods when the dam outlets are closed, for a period of up to 32 days. During the five-year construction period, juvenile salmon and other fish species such as lamprey would be considered as incidental and not targeted for collection for trap-and-transport (DEIS, p. 74). Furthermore, juvenile salmon would likely avoid the fish passage tunnel. The survival rate for adult salmon and steelhead would range from 32 to 65 percent (DEIS, p. 74).

b. Regional and International Salmon Fisheries

The significant adverse effects of the proposed project on commercial, recreational, and subsistence fisheries extend beyond the Chehalis River Basin. Chehalis fall chinook are harvested from the Washington coast north to Alaska and Chehalis coho are harvested from southern Oregon to British Columbia. The Chehalis River watershed is the predominate production area within the Grays Harbor system. Grays Harbor spring chinook spawn primarily in the upper reaches of the mainstem Chehalis River and its tributaries. The Chehalis River also is home to the largest component of fall chinook and coho spawning in the Grays Harbor system. Grays Harbor coho and chinook (spring and fall) are the largest component of the Washington Coast production region. This is an important region for the management of salmon coast-wide, both from a domestic and international standpoint. All three of these management units are indicator stocks within the United States domestic fishery management process, as well as meeting the requirements of the international Pacific Salmon Treaty between the United States and Canada, with Grays Harbor coho and fall chinook being management units that are tracked to measure the performance of both the 2019 Coho and Chinook Agreements.

⁶ Lestelle, L. and G. Morishima. 2020. Technical Report: Review of Impacts on Fish and Fisheries as Presented in the SEPA DEIS Evaluation of Flood Protection in the Chehalis Basin. Prepared for the Quinault Indian Nation. Taholah, WA.

c. Effects on Orca Whales and Other Species

Severe and permanent reductions of salmon production in the Chehalis River Basin would negatively affect southern resident killer whales (SRKW), which were listed as endangered under the Endangered Species Act in 2005. The Southern Resident Orca Task Force created by Governor Inslee in 2018 recommended increasing the availability of chinook as one of its overarching goals. The DEIS states that the reduction of Chehalis River Basin salmon and steelhead, especially the spring chinook, would have a moderate adverse impact on SRKW (DEIS, p. 81). In addition, reductions in Chehalis River salmon runs would result in greater harvest pressure on other fisheries, creating even more competition for the salmon needed by the SRKW.

The DEIS presents minimal analysis of impacts to other treaty-protected animal and plant species and their habitats, such as for bull trout, cutthroat trout, lamprey, and eulachon. It does state, however, that the proposed project would have a significant adverse effect on non-salmon fish from the temporary reservoir area downstream to the confluence with Elk Creek near Doty, WA. Mitigation for these harmful impacts are not presented by the applicant and it may not be feasible that the project mitigation would be able to achieve the minimum requirement of no net loss of ecological function for fish or their habitat (DEIS, p.79).

The lower Chehalis River is designated as critical habitat for bull trout, which were listed as threatened under the ESA (DEIS, E-48). Pacific lamprey are listed as a "Species of Greatest Conservation Need in Washington" and have great traditional importance to tribal communities. They have been found throughout the Chehalis River Basin, including above the proposed FRE site, although no plans for their passage during FRE operations have been made. Lack of fish passage, along with reduced spawning habitat, lower summer flows, and warmer water temperatures would have significant adverse impacts on Pacific lamprey.

The loss of habitat-forming processes from operation of the proposed project would have significant adverse impacts to the Olympic mudminnow, as well as coho salmon, that rear in off-channel and floodplain habitats (DEIS, E-30). The Olympic mudminnow is only found in limited areas of Washington and is listed as a sensitive species by the state. It is completely dependent on healthy wetland habitat for all life phases, including spawning.⁷ The majority of the remaining population occurs within the Chehalis River Basin (DEIS, E-48).

Although freshwater mussel species are also tribally important and are found throughout the upper and middle Chehalis River, impacts of the proposed project to their populations were not fully evaluated. They are slow growing, very slow to recolonize, and are especially vulnerable

⁷ Mongillo, P.E. and M. Hallock. 1999. Washington state status report for the Olympic mudminnow. Washington Department of Fish and Wildlife. Olympia, WA.

to changes in streamflow, sedimentation, and substrate (DEIS, p. E-51). Again, mitigation for these impacts are not described in any detail and may not be feasible.

d. Ecosystem Effects

The proposed project would have significant and unavoidable impacts to virtually the entire aquatic ecosystem of the Chehalis River Basin. This includes species that are listed or are candidates for listing in Washington as endangered, threatened, or sensitive. Impacts to aquatic species would be significant and unavoidable due to the direct destruction of 6.4 miles of aquatic habitat in the reservoir area, and loss of habitat complexity and channel-forming processes downstream of the proposed FRE. Riverine and riparian habitat in the reservoir area would be permanently degraded by loss of riparian trees, lack of large woody debris, and sediment deposition, all of which would alter the channel structure and complexity and destroy salmon and steelhead habitat for spawning and rearing. The proposed FRE would trap woody material during operation, eliminating a vital element of riverine and floodplain ecosystems and habitat. Although the DEIS proposes a Large Woody Material Management Plan for placing woody material back in the Chehalis River system, no details of this plan are listed and so it is not possible to assess whether or not it would replace enough woody material in the river to fully mitigate for the loss.

Channel evolution and habitat-forming processes that occur with river flows greater than 38,800 cubic feet per second (cfs) would be eliminated. Impoundment and an extended drawdown period every time the dam is in operation would also alter flow regimes. The DEIS lists losses of habitat-forming processes and ecological function as a result of the proposed FRE in the areas downstream of the facility to (DEIS, p. 80). These alterations would also result in channel incision, changes to channel and floodplain morphology, and vegetation encroachment into side channels as flows are reduced.⁸ The resulting disconnection between the river channel and the floodplain would also negatively affect instream flows and groundwater levels and result in habitat fragmentation.

The presence of the proposed project would likely encourage further residential and commercial development in the floodplain (DEIS, p. G-49). This would put more people and property in harm's way and create conditions for further destruction of aquatic and floodplain habitat, especially with the changes to river hydrology that will continue to occur as a result of climate change. In addition, the proposed project as designed would not prevent the inundation of all floodplain areas. The SEPA process requires the analysis of direct, indirect, and cumulative impacts (WAC 197-11-792), which should include how the project might

⁸ Natural Systems Design. 2020. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project SEPA DEIS, Hydrology Technical Memo 2: Hydrology and Climate Change Technical Analyses Review. Prepared for the Quinault Indian Nation. Taholah, WA.

influence the cumulative impacts of floodplain development spurred on by the proposed project.

3. Climate Change and Environmental Conditions

a. Frequency of Events Triggering Operation of the FRE

In the Pacific Northwest, heavier storms are expected as atmospheric rivers (plumes of moisture from the tropical Pacific Ocean commonly known as the Pineapple Express) are projected to get 26 to 30 percent stronger by 2070.⁹ Consequently, winter flood risk in the region, and specifically in the Chehalis River Basin, will increase due to heavy precipitation events increasing in both frequency and intensity.

The hydrological model used for the DEIS analysis, a Distributed Hydrologic Soil Vegetation Model (DHSVM), provides projections of potential changes in basin hydrology due to climate change. However, there are limitations to the model due to the limited scope allotted for the DEIS hydrological study. Because the proposed project would have significant and unavoidable adverse environmental impacts, it is imperative that the projections of future hydrological conditions in the basin be as robust as possible. Otherwise, an accurate assessment of the full impacts of the proposed project during its entire design life is not possible.

The lack of sufficient climate models is a major limitation of the hydrological modelling study.¹⁰ The study used two global climate models, while six to ten models are considered necessary to develop the best estimates of the mean and range values among projections.¹¹ Although the average increases in peak flow in the hydrological study were 12 and 26 percent, the predictions of flow at a specific location for this DHSVM model range from a slight decrease of 1 percent to a 31 percent increase for mid-century and 14 to 47 percent increase for the end of the century.¹²

Another limitation arises from the lack of long-term meteorological data for parts of the basin. The meteorological data used were the best available and the only spatially distributed, hourly historical data set for the Chehalis River Basin.¹³ However, in some locations, the model

⁹ Warner, M.D., C.E. Mass, and E.P. Salathé. 2014. Changes in winter atmospheric rivers along the North American West Coast in CMIP5 climate models. *Journal of Hydrometeorology* 16: 118-128.

¹⁰ Mauger, G.S. and L.M. Karpack. 2019. Putting the New Chehalis Climate Change Results in Context. Memo prepared for Anchor QEA. Climate Impacts Group, University of Washington. Appendix C in Karpack, L. and C. Butler. 2019. Chehalis River Basin Hydrologic Modeling. Prepared for Anchor QEA. Seattle, WA.

¹¹ Mauger, G.S. and L.M. Karpack. 2019. Putting the New Chehalis Climate Change Results in Context. Memo prepared for Anchor QEA. Climate Impacts Group, University of Washington. Appendix C in Karpack, L. and C. Butler. 2019. Chehalis River Basin Hydrologic Modeling. Prepared for Anchor QEA. Seattle, WA.

¹² Karpack, L. and C. Butler. 2019. Chehalis River Basin Hydrologic Modeling. Prepared for Anchor QEA. Seattle, WA.

¹³ Karpack, L. and C. Butler. 2019. Chehalis River Basin Hydrologic Modeling. Prepared for Anchor QEA. Seattle, WA.

underestimates peak flows because of bias in the precipitation data set or due to soil or channel characteristics that the DHSVM model is not able to fully represent.¹⁴ The modeling study states that it is not clear if the current model and the available meteorological data are appropriate for use in sediment transport models, water quality analyses, or to produce streamflow forecasts during extreme floods.¹⁵ Given the complexity of a basin the size of the Chehalis and the lack of a reliable long-term meteorological data set, the model should be considered a first step not a determination.

The DEIS predicts that under current climate conditions, the probability that the 38,800 cfs threshold will be met for FRE operation is 14 percent, which correlates with a 7-year flood recurrence interval. The DHSVM model indicates that peak flows will increase 12 percent and 26 percent in the middle and latter part of the 21st century, respectively, due to climate change (DEIS, p. 41). This correlates with probabilities of the 38,800 cfs threshold occurring of 20 percent (or a 5-year flood interval) for mid-century and 25 percent (or 4-year flood interval) for the end of the century (DEIS, 28).

An independent analysis of Chehalis River Basin hydrology reveals limitations in the predictions of the frequency of reservoir operation. The DEIS assessment is based on a statistical analysis of the annual maximum streamflow, but that neglects to take into account that the 38,800 cfs threshold for impoundment may occur multiple times in a single year. Using the complete flow record, and not just the annual maximum flows, shows that meeting the threshold will have a 56 percent probability (or a 1.8-year flood interval) mid-century and a 71 percent probability (or a 1.4-year flood interval) at the end of the century.¹⁶

Furthermore, if a high flow event that exceeds the drawdown rate occurs during the drawdown period, the duration of the impacts to fish and aquatic life from impoundment will also be extended. The greater frequency of impoundment and an extended duration of drawdown increases the likelihood of bank erosion and landslides. Rather than the 840,500 cubic yards of sediment delivery stated in the DEIS, the actual amount could be as much as 16 million cubic yards over the design life of the project.¹⁷ Excessive fine sediment loads in rivers can also be caused by mass wasting and surface erosion after the proposed removal of the riparian vegetation that enhances bank stability and traps fine sediment from upland runoff. High sediment loads can also occur due to the disconnection of the channel from adjacent

¹⁴ Karpack, L. and C. Butler. 2019. Chehalis River Basin Hydrologic Modeling. Prepared for Anchor QEA. Seattle, WA.

¹⁵ Karpack, L. and C. Butler. 2019. Chehalis River Basin Hydrologic Modeling. Prepared for Anchor QEA. Seattle, WA.

¹⁶ Natural Systems Design. 2020. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project SEPA DEIS, Hydrology Technical Memo 2: Hydrology and Climate Change Technical Analyses Review. Prepared for the Quinault Indian Nation. Taholah, WA.

¹⁷ Natural Systems Design. 2020. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project SEPA DEIS, Hydrology Technical Memo 2: Hydrology and Climate Change Technical Analyses Review. Prepared for the Quinault Indian Nation. Taholah, WA.

floodplains and wetlands, where fine sediments settle out during overbank flows. Both of these impacts are under-predicted for the proposed project.

In addition, backwatering behind the FRE would occur at flows of 8,500 cfs or greater because of the limited capacity of the Low-Level Outlets. Backwatering would disrupt natural river and habitat-forming processes such as coarse sediment transport, movement of large woody debris, and fish passage. Independent analysis of historical streamflow records indicates that such backwatering would occur once every 3 years on average.¹⁸

b. Stream Temperature

In Washington, summer base flows are projected to decrease, particularly for rain-dominated watersheds west of the Cascades, such as the Chehalis River Basin.¹⁹ Low flow conditions will become more severe and less water in the stream exacerbates rising stream temperatures. According to the DEIS, river temperatures would increase under the proposed project by as much by 3.6°F to 5.4°F in the reservoir area and immediately downstream and by 3.6°F to 9°F in Crim Creek (DEIS, p.53). The temperature impacts would continue 20 miles downstream of the FRE (DEIS, p.42). Trees removed during construction, operations, or from flood events, would cause the river temperature to increase due to loss of shade. In addition, trees larger than 6 inches in diameter would be regularly removed to prevent accumulation at the FRE outlets (DEIS, p.21). Although the applicant claims that native vegetation would be encouraged (DEIS, p.21), the loss of trees would not only reduce shading, it also would eliminate the important habitat-forming and maintaining processes of a forested riparian zone, such as filtration of sediment and pollutants, introduction of woody debris and nutrients, sources of terrestrial insect prey for salmon, and wildlife habitat.

Elevated stream temperatures and reduced dissolved oxygen level would result in significant and unavoidable adverse environmental impacts to surface water quality and designated uses of the Chehalis River and Crim Creek for salmonid habitat (DEIS, p.43). Currently instream flows and stream temperature standards are not met at Ground Mound, (DEIS, p N-21) and the impacts of climate change on these parameters would be worsened by the FRE (DEIS, p. 123). No mitigation is proposed by the applicant other than plans to try to develop a mitigation plan in the future, although the DEIS concedes that implementation of a plan may not be technically feasible and economically practicable (DEIS, p.43).

¹⁸ Natural Systems Design. 2020. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project SEPA DEIS, Hydrology Technical Memo 2: Hydrology and Climate Change Technical Analyses Review. Prepared for the Quinault Indian Nation. Taholah, WA.

¹⁹ Tohver, I.M., A.F. Hamlet, and S.Y. Lee. 2014. Impacts of 21st-century climate change on hydrologic extremes in the Pacific Northwest region of North America. *Journal of the American Water Resources Association* 50(6): 1461-1476.

4. The Local Actions Alternative and the Chehalis Basin Aquatic Species Restoration Plan (ASRP)

The Local Actions Alternative would be developed by local governments and communities in collaboration with The Office of the Chehalis Basin. Although there is currently enough information about this basin-scale floodplain management approach, the DEIS does not develop or analyze a reasonable alternative to the FRE in detail, as is required by state law.²⁰ The Local Actions Alternative is capable of meeting both of the Chehalis Basin Strategy goals through an integrated basin plan to reduce flood damage and restore aquatic habitat. It would utilize methods that are congruent with salmon recovery and are sustainable in the long-term because they do not require on-going maintenance or risk catastrophic dam or levee failure. The FRE would not protect all the communities in the basin and would not help with floods other than major floods (38,800 cfs at Grand Mound or 14 percent probability) or catastrophic floods (75,100 cfs or a 1 percent probability). An integrated flood management approach would provide benefits throughout the watershed and would help with regular, lesser flooding.

A coalition of the State of Washington, the Confederated Tribes of Chehalis, the Quinault Indian Nation and others are working together to develop the ASRP to restore river health and salmon populations, and to prepare for the impacts of climate change. The ASRP is a science-based, full watershed approach that will restore 200 to 400 miles of the river and its tributaries. The major components of the ASRP include restoring riparian forests to provide shade, large woody material, erosion protection, and wildlife migration corridors; floodplain restoration that would improve off-channel and wetland habitat, attenuate flood flows, and augment low flows; removal of fish passage barriers; and installing instream large woody material to improve geomorphic function and habitat-forming processes in the river.

Nature-based solutions such as the ASRP work with nature to increase the resilience of communities and ecosystems to climate change. They have concomitant benefits of improving biodiversity, delivering ecosystem services, and enhancing human health and well-being. Protecting and restoring ecosystem function also preserves climate refugia, where changes are expected to occur more slowly or to a lesser degree.

Conclusion

In conclusion, the SEPA DEIS for the Proposed Chehalis River Basin Flood Damage Reduction Project describes a preferred alternative with many significant and unavoidable adverse impacts to the environment and to tribal interests. Nonetheless, the DEIS fails to present sufficient detail in a number of areas: the mitigation for significant adverse effects to the environment; the adverse impacts to fish, other aquatic species, SRKW, and the riverine

²⁰ WAC 197-11-440(5)(c)(vi)

ecosystem; how climate change will alter environmental conditions during the life of the proposed project; adequate analysis of the Local Actions Alternative; and impacts to tribal treaty rights. Hence, the analysis provided in the DEIS is insufficient for a meaningful evaluation of the full impacts of the preferred alternative.

The very consideration of constructing a dam on what is now a free-flowing salmon river sets a dangerous precedent and is incongruent with the significant investments in ecosystem conservation and restoration currently underway to promote climate resilience and protect critical habitat. Today more than ever, with declining fisheries and compounding pressure from climate change and population growth, comprehensive river basin planning that protects and restores riparian and floodplain function is essential. While Washington State makes significant investments in restoring degraded habitat, it must also fully exercise its authorities to protect the essential habitat that remains. Without these protections, habitat that is essential to salmon recovery and ensuring that tribes can exercise their treaty-reserved rights to fish, gather, and hunt will be lost. It is the responsibility of the State of Washington to honor tribal rights and resources, and as a co-manager of the fisheries resources, to use its SEPA authority to deny the preferred alternative and continue to fund and develop actions such as the ASRP that will promote public safety, resilience to climate change, and a thriving environment in the Chehalis River Basin for generations to come.

Should you have any questions on this matter, please contact Eliza Ghitis, Climate Change Scientist at eghitis@nwifc.org or (360) 438-1180.

Sincerely,

A handwritten signature in blue ink that reads "Justin R. Parker". The signature is written in a cursive, flowing style.

Justin R. Parker
Executive Director

cc: Tyson Johnston, Vice President, Quinault Indian Nation