American Rivers (Neina Chapa)

February 03, 2026

SEPA Revised Draft EIS for Chehalis Flood Damage Reduction Project
c/o Bobbak Talebi
Southwest Region Office
P.O. Box 47775
Olympia, WA 98504-7775

Submitted electronically:
RE: SEPA Revised Draft EIS for Chehalis River Basin Flood Damage Reduction Project

Dear Mr. Talebi,

American Rivers appreciates the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for the Chehalis River Basin Flood Reduction Project (Proposed Action). We recommend that the following comments be addressed in consideration of the Final Environmental Impact Statement for the Proposed Action.

Executive Summary

American Rivers has reviewed the DEIS and opposes the Proposed Action as described due to the significant and unavoidable adverse impacts to aquatic species and tribal resources. We strongly recommend that the Washington Department of Ecology implement non-dam alternatives under development by the Office of Chehalis Basin.

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 355,000 members, supporters, and volunteers, we are a premier river conservation organization in the United States, delivering solutions that will last for generations to come. For more than 50 years, our staff, supporters, and partners have been driven by a common belief: Life Depends on Rivers.

American Rivers is advancing Integrated Floodplain Management (IFM) across the nation. IFM is a multi-disciplinary approach to managing floodplains that brings together multiple stakeholders, encourages collaboration, and seeks to achieve multiple benefits. Over the last year we have audited all 50 state's floodplain management approaches to understand and document their readiness for IFM. We have found countless examples of integrated efforts successfully reducing flood damage, restoring aquatic species, and helping communities across the country thrive. Across diverse political and geographic spectrums, successful approaches rely on a suite of complementary actions all working collectively to achieve multiple benefits.

This approach aligns well with the authorizing legislation for the Office of Chehalis Basin (RCW 43.21A.730) which states: *"The primary purpose of the office 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."*

For almost a decade, American Rivers has worked closely with the Office of Chehalis Basin (OCB) to achieve this purpose. We have brought our experience from other successful state integrated programs like the Yakima Basin Integrated Plan and Floodplains by Design to develop the Aquatic Species Restoration Plan (ASRP) Implementation Plan and the Local Action Non-Dam (LAND) Alternative while supporting other OCB priorities like the Community Flood Assistance and Resilience program, as well as local flood authority and partner projects. For the last decade, American Rivers has been taking a multi-faceted approach to supporting the Chehalis Basin as described below:

- In 2016, American Rivers 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 Chehalis 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 Basin 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. American Rivers submitted scoping comments and raised numerous concerns that the proposed large-scale flood reduction projects would have marginal flood reduction benefits at an enormous cost to the citizens of Washington state and to the health of the Chehalis River Basin.
- In 2020, we submitted comments on the previous SEPA DEIS and NEPA DEIS[1] for this Proposed Action, citing the significant adverse environmental and cultural impacts; lack of mitigation; vague purpose, objectives, and operation; and failure to analyze reasonable alternatives.
- In 2020, we submitted comments on Phase 1 of the ASRP and proceeded to work collaboratively with ASRP partners to develop the ASRP Implementation Plan in subsequent years. The ASRP is now a successful program that takes a multi-pronged

[1] U.S. Army Corps of Engineers 2021. Chehalis NEPA EIS Public Comments- Organizations. officeofchehalisbasin.com, PDF download.

approach to aquatic species recovery, has a clear shared decision-making structure, and has board support from a variety of organizations.

- From 2020 to 2023, in response to Governor Inslee's July 22, 2020 letter[2] calling for the development of a non-dam alternative to reduce flood damage among other things, we participated in the Local Actions Program Advisory Group (LAP) and the subsequent LAND Alternative Steering Committee to guide the development of a conceptual non-dam alternative to the Proposed Action. The result of that effort was agreement between Tribal, economic, agricultural, and environmental interests on viable non-dam alternatives, which are now being further developed.
- From 2024 to now, we have participated in briefings to advance concepts of the LAND to a higher level of design. While the designs of these non-dam concepts are still years behind the Proposed Action in terms of development, they show significant promise to reduce flood damage through a multi-pronged and phased approach that complements the ASRP at lower cost and potentially lower environmental impact compared to the Proposed Action.

After reviewing the updated DEIS, **we must oppose the Proposed Action as it would have "significant adverse impacts on fish, wildlife, aquatic and terrestrial habitat, recreation, earth, water, transportation, wetlands, land use, Tribal resources, cultural resources, environmental health and safety, environmental justice, and public services and utilities."** (SEPA Revised DEIS Summary, page S-9).

We offer more detail on our concerns in the comments below organized into the following sections.

1. **Ecological Incompatibility:** The operation of the FRE facility will likely lead to the functional extirpation of spring-run Chinook salmon in the upper sub-basins due to water temperature degradation, passage mortality, and habitat disconnection and degradation.
2. **Impact to Tribal Sovereignty:** The project will cause unmitigable damage to Traditional Cultural Places and treaty-protected resources, violating the principles of Tribal Sovereignty. *"To date, there is no information available about mitigation proposed by or supported by the Tribes that would reduce the level of impact to less than significant."* (Fact Sheet, page 5).
3. **Technical Viability:** The viability of the FRE facility is challenged by geotechnical instability and landslides, construction phase risks, seismic hazards, and the compounding variables of climate change. Furthermore, it is untested in this environment.
4. **Mitigation Uncertainty:** The proposed mitigation strategies rely on unproven biological assumptions that contradict the DEIS's own wetland impact analysis. There are also significant questions regarding the landowner's willingness to engage with the proposed mitigation actions and there is uncertainty about whether the cultural impacts can be

[2] Jay Inslee 2020. Letter to the Chehalis Basin Board. ecology.wa.gov, PDF download.

mitigated at all. *"There is uncertainty around whether mitigation is technically feasible or economically practicable."* (Summary, page S-20).

5. **Analytical Asymmetry:** The "Local Actions Alternative" is analyzed with significantly less rigor than the Proposed Action. The hydraulic benefits of widespread floodplain restoration are acknowledged qualitatively but not modeled quantitatively, precluding a fair comparison of reasonable alternatives.

6. **Hazard Creep and False Sense of Security:** The Proposed Action purports to reduce flood damage by holding back water from the Willapa Hills and decreasing the extent of the 100-year floodplain. The Proposed Action does nothing to reduce flood damage from lower frequency events and flooding from other tributaries of the Chehalis River. Without updated local floodplain management regulations, we are concerned this will lead to the "Safe Development Paradox"[3], giving the false impression that an area is safe from flooding and therefore attracts increased floodplain development. *"The Proposed Action has the potential for significant adverse impacts if changes in areas mapped or perceived to be less prone to flooding result in altered land use development patterns."* (Appendix 2, page 26). To date, the project proponents and Lewis County have shown no meaningful progress on updating flood maps or land use and development standards to reduce risky development. Furthermore, the proposed dam would have a hazard potential classification of "High Hazard" (Appendix C, Environmental Health and Safety Discipline Report) resulting in loss of life and property if the dam failed and released the stored water suddenly.

7. **Is It Worth It?:** Given the significant adverse environmental and cultural impacts of the Proposed Action, $2+ billion price tag, uncertain and unproven design and mitigation, no clear pathway towards construction funding, long timeline for construction, and operations that would only activate the dam 3 times every 20-years based on historical data, is this project worth it for Washington taxpayers? The benefits of the Proposed Action are outweighed by the ecological and cultural impacts at a time when climate change is increasing the occurrence and severity of large-scale flooding events. Does the Chehalis Basin have the time and money to wait until 2035 for a $2+ billion-dollar dam while non-dam alternatives can be implemented in phases and work can begin immediately to meet the statutory obligation of the Chehalis Basin Strategy?

1. Ecological Incompatibility and Statutory Conflicts

The foundational authorization for the Chehalis Basin Strategy, codified in RCW 43.21A.732, establishes a dual mandate: to reduce flood damage and to restore aquatic species. The statute explicitly links these goals, implying that one cannot be pursued to the detriment of the other. A project that sacrifices ecological integrity for flood suppression is a failure of design and policy. The evidence contained within the Revised Draft EIS (DEIS) incontrovertibly leads to the conclusion that the Proposed Action is ecologically incompatible with the Chehalis Basin

[3] Sanchez et al., 2024. The Safe Development Paradox of the United States Regulatory Floodplain. *PLoS ONE* 19(12): e0311718. https://doi.org/10.1371/journal.pone.0311718

Strategy's restoration goals and is fundamentally incompatible with the aquatic species restoration mandate. As described on page 89 of the DEIS, the project creates conditions that not only hinder restoration but actively accelerates the decline of genetically distinct salmonid populations, which are essential to the basin's ecological recovery. The significant, unavoidable impacts to spring-run Chinook salmon, water quality, and geomorphic processes constitute a violation of RCW 43.21A.732 and the spirit of former Governor Inslee's July 2020 letter to the Chehalis Basin Board. Therefore, American Rivers asserts that the project cannot be permitted as currently designed without abandoning the legislative mandate for aquatic restoration.

1.1. Irreversible Impacts to Spring-Run Chinook Salmon

The ecological analysis within the DEIS Appendix E: Fish Species and Habitats Discipline Report provide compelling evidence that the FRE facility poses an existential threat to spring-run Chinook salmon (*Oncorhynchus tshawytscha*). This population is genetically unique and behaviorally distinct from fall-run Chinook, relying on the upper basin's cooler waters and deep holding pools to survive the summer months before spawning. Headwater integrity is essential of salmonid recovery and severing access to these areas or degrading their quality compromises the entire run.

The DEIS modeling indicates that under the Proposed Action, the population of spring-run Chinook in the area directly downstream of the dam, or the "Rainbow Falls to Crim Creek" subbasin, would face near-total extirpation by late-century. Specifically, the Ecosystem Diagnosis and Treatment (EDT) and Life Cycle Model (LCM) results predict a decrease in spring-run Chinook abundance by 87% in the upper subbasin under late-century climate conditions. This effectively renders the population functionally extinct. As described in the 6-year study conducted by the Washington Department of Fish and Wildlife[4], Chinook, coho, and steelhead actively spawn in the area impacted by the Proposed Action and any modifications or disruptions to flow or habitat in these spawning areas are expected to have a detrimental impact on spawning and egg-to-fry survival. The extirpation of spring-run Chinook in the upper basin further imperils the unique spring-run genetic lineage of Chehalis Basin Chinook populations.

The mechanism of the impact from the Proposed Action is twofold: obstruction and habitat degradation. While the FRE is described as a "flow-through" structure to mitigate concerns raised in 2020, the physical presence of the dam combined with the hydrological alterations during construction and operation severs connectivity to critical upstream thermal refugia. The modeling demonstrates that the "flow-through" operation does not mitigate the biological reality of the barrier (Section 5.3). The decline is exacerbated by climate change, yet the project acts as a force multiplier for extinction risk rather than a buffer.

This outcome is antithetical to the state's recovery goals. The spring-run Chinook are not merely another fish stock; they are a keystone of the Chehalis ecosystem and a critical cultural resource for the Quinault Indian Nation and the Confederated Tribes of the Chehalis Reservation. Spring-run Chinook are also essential for the survival of the endangered Southern

[4] Ronne et. al., 2020. Spawner Abundance and Distribution of Salmon and Steelhead in the Upper Chehalis River, 2019 and Synthesis of 2013-2019, FPT 20-06 Washington Department of Fish and Wildlife, Olympia, Washington.

Resident Orca Whales. The DEIS acknowledges that impacts to these fish would be "significant and unavoidable." A project that results in the functional extinction of a target restoration species cannot be considered a viable component of a comprehensive basin strategy.

1.2. Impacts on Non-Salmonid Native Species

While salmonids receive the bulk of the analysis, the DEIS also identifies significant impacts to other native species, including Pacific lamprey (*Entosphenus tridentatus*) and freshwater mussels (Appendix E, Fish Species and Habitat Discipline Report). Lamprey, an ancient and culturally significant species, face contraction of spawning and rearing habitat due to the FRE. The specialized habitat requirements of lamprey ammocoetes (larvae), which burrow in fine sediments, make them particularly vulnerable to the altered sediment transport regimes and scour/deposition cycles induced by the dam's operation. The DEIS admits that lamprey passage effectiveness is lower than that for salmonids, and the long-term viability of lamprey populations upstream of the facility is in severe jeopardy (Section 5.3).

1.3. Water Quality Degradation: Temperature and Turbidity

Water quality modeling presented in the Water Discipline Report identifies significant adverse impacts related to temperature and dissolved oxygen. The removal of riparian vegetation within the 824-acre temporary reservoir footprint leads to increased solar insolation. The modeling predicts that water temperatures in the reservoir area and downstream reaches could increase by up to 2°C to 3°C during summer months in late-century scenarios. As stated in the DEIS, the District can provide a Surface Water Quality Mitigation Plan, but implementation must be feasible and Ecology must determine the plan meets the requirements of the Clean Water Act, RCW 90.48, and WAC 173-201A. There is uncertainty about whether the proposed mitigation actions proposed in section 5.17.2 for water temperature impacts are technically feasible and economically practicable. Overall, some aspects of the Proposed FRE Mitigation Plan, especially the Water Quality Mitigation Plan, do not rely on proven mitigation methods (Appendix N, page 114).

For cold-water obligates like salmon and steelhead, a temperature increase of this magnitude is catastrophic, particularly when baseline conditions are already nearing lethal limits due to climate change. The "thermal loading" effect of the reservoir footprint where vegetation is permanently suppressed to shrub/scrub status creates a heat sink in the upper watershed. This warmer water is then conveyed downstream, expanding the thermal barrier that blocks fish migration and increases metabolic stress and disease susceptibility. Unlike Mud Mountain Dam, which is commonly referenced as a precedent for the Proposed Action, the Upper Chehalis is fed by winter rains and not cold glacial melt, making this comparison moot.

Furthermore, the operation of the FRE involves holding floodwaters and releasing them over a period of up to 32 days. This release of impounded water typically correlates with high turbidity events. Using conservative assumptions, The DEIS acknowledges that turbidity criteria would be exceeded for weeks following flood events (18 days for catastrophic floods, 28 days for major floods; DEIS page 58). Chronic exposure to high turbidity damages fish gills, reduces feeding efficiency, and suffocates salmon redds (egg nests). The persistence of these water

quality violations demonstrates that the project cannot meet state water quality standards and should not be approved.

1.4. Inefficacy of "Flow-Through" Design for Aquatic Connectivity

The Applicant characterizes the FRE as a "flow-through" structure to differentiate it from traditional dams. However, the Fish Species and Habitats Discipline Report reveals that this distinction is semantic rather than functional regarding ecological impact. During construction (lasting 5 years), the river would be diverted, and fish passage would be contingent on a trap-and-transport system or a temporary bypass channel, both of which have high mortality rates and stress implications for migrating fish.

During operation, the structure presents a physical and hydraulic barrier. Even when the gates are open, the hydraulic conditions through the conduits (velocity, turbulence, and lighting) can deter passage for weaker swimmers or juvenile fish (Appendix E, Fish Species and Habitat Discipline Report). The loss of volitional passage during flood retention events when many fish move to access floodplain refugia disrupts the evolutionary timing of migration. The DEIS estimates regarding passage efficiency are optimistic and rely on unproven engineering solutions for a structure of this scale. See Section 4.1. Unproven Efficacy of Fish Passage Facilities for additional discussion.

1.5. Disruption of Geomorphic Processes and Habitat Formation

A river is more than a conduit for water; it is a conveyor of sediment, wood, and nutrients that build and maintain complex habitats. Good geomorphology relies on the "work" the river does by creating log jams, scouring pools, and depositing gravel to maintain habitat without expensive human intervention[5]. The Earth Discipline Report details how the FRE facility would fundamentally alter these geomorphic processes.

The FRE facility, by impounding high flows, would intercept the recruitment of Large Woody Material (LWM) and coarse sediment from the upper watershed. The upper Chehalis Basin is a primary source of LWM, which creates pools, stabilizes gravel bars, and provides cover for juvenile fish. The DEIS indicates that during flood retention events, LWM would be trapped behind the dam. While the Applicant proposes a "wood management plan" to mechanically transport wood downstream, the efficacy of such artificial measures is historically poor and costly compared to natural transport regimes[6].

The reduction in channel-forming flows where high-velocity events scour pools and reconnect side channels would lead to a simplified, static channel downstream of the dam. The DEIS notes that channel migration, a vital process for creating off-channel rearing habitats, would decrease in unconfined areas between River Mile (RM) 105 and RM 88. This "fossilization" of the river channel degrades the very habitat that the Aquatic Species Restoration Plan (ASRP)

[5] Marren et al., 2014. The Potential for Dams to Impact Lowland Meandering River Floodplain Geomorphology. *The Scientific World Journal*, January 2014. https://doi.org/10.1155/2014/309673
[6] Wohl et al., 2019. The Natural Wood Regime in Rivers. *BioScience,* Volume 69, Issue 4, April 2019. https://doi.org/10.1093/biosci/biz013

seeks to create. For a strategy predicated on restoration, the elimination of the river's ability to heal and build its own habitat represents a critical strategic failure.

2. Impacts to Tribal Sovereignty

The most profound and legally potent objection to the Proposed Action lies in its impacts on the Treaty Rights of the Quinault Indian Nation and the Confederated Tribes of the Chehalis Reservation. The DEIS Tribal Resources Discipline Report is stark in its assessment: the project causes significant, unavoidable impacts to tribal resources, including fish, cultural sites, and access to traditional areas.

While American Rivers cares deeply about tribal sovereignty, we are not tribal members. We strongly advise the Washington Department of Ecology to review comments from Tribal Nations and engage in government-to-government conversations with tribal representatives to determine their perspective and follow their recommendations for future actions.

2.1. Violation of Treaty-Reserved Rights and Tribal Trust Resources

The Quinault Indian Nation holds treaty-reserved rights to take fish at all usual and accustomed grounds and stations. As established in *United States v. Washington*, these rights include a servitude on the land to prevent the degradation of fish habitat that would deprive the Tribes of a livelihood. The Quinault Indian Nation has explicitly stated that the proposed project would "devastate" ecological processes and put treaty resources in peril. The DEIS confirms these concerns, finding that the FRE would cause significant and permanent declines in salmon and steelhead populations through degradation of spawning and rearing habitat, increased water temperatures, reduced habitat complexity, and loss of genetic diversity.

These same project effects would also impair the federally recognized rights and interests of the Confederated Tribes of the Chehalis Reservation, for whom the State and federal government owe trust responsibilities. The Chehalis Tribe's rights include the continued ability to fish, harvest, and steward aquatic resources and to maintain cultural practices tied to the Chehalis River and its fisheries. By authorizing infrastructure that reduces fish abundance, eliminates specific life-history populations, and permanently alters culturally significant riverine landscapes, the State would both fail to uphold its trust obligations to the Chehalis Tribe and infringe upon Quinault Indian Nation's treaty-reserved fisheries.

If the river produces fewer fish because of state-permitted infrastructure, the state is liable for the infringement of federally protected treaty rights and the impairment of Tribal trust resources. The "mitigation" proposed in the DEIS does not replace the specific fish stocks or the specific geographic places (like the upper river spawning grounds) that are central to both treaty-protected fisheries and the Chehalis Tribe's reserved uses. A project that knowingly authorizes these outcomes is fundamentally unjust and incompatible with the State's legal and moral obligations to Tribal Nations.

2.2. Destruction of Cultural and Sacred Sites

The area of the proposed FRE and its reservoir is rich in cultural significance. The DEIS notes impacts to archaeological sites and Traditional Cultural Places (TCPs). Unlike a building that

can be moved, a TCP is often tied to the specific aspects of the landscape like the bend in the river, the spirit of the water, and the ancestral usage of the site. Inundation of these areas, even temporarily, alters their character and integrity. These changes to the landscape would permanently alter culturally significant areas and the impacts are unmitigable.

2.3. Disproportionate Impact on Tribal Sovereignty

The Tribes bear a disproportionate burden of the project's impacts. They lose the fish, the cultural sites, and the spiritual sanctity of the river, while the economic benefits of flood reduction accrue largely to non-tribal commercial and residential properties in Chehalis and Centralia, with limited downstream benefit for tribal communities and infrastructure.

The DEIS acknowledges that "mitigation of some impacts associated with the Proposed Action will not be acceptable" to the Tribes. In the context of Washington state's government-to-government relationship and federal trust responsibility, a project that faces such vehement and well-founded opposition from sovereign Tribal nations based on treaty violations is fundamentally non-viable.

3. Technical Viability and Long-Term Risks

The technical viability of the FRE facility is challenged by geological instability, construction complexity, and the compounding variables of climate change. The DEIS reveals significant risks that question whether the project can be built and operated as promised without triggering secondary disasters.

3.1. Geotechnical Instability and Landslides

The proposed site for the FRE is located in geologically unstable terrain. The Earth Discipline Report identifies the risk of landslides within the reservoir area. The fluctuation of water levels (rapid filling and drawdown) is a known trigger for slope destabilization. A massive landslide into a full reservoir could generate a displacement wave (seiche) capable of overtopping the dam or damaging the outlet. This could result in a flood downstream that would likely cause loss of life and property as identified in the dam’s high hazard potential classification.

Furthermore, landslides contribute massive pulses of sediment. The DEIS notes that sediment transport would be disrupted, with sediment accumulating in the reservoir. If a landslide buries the fish passage intake or clogs the outlet conduits, the facility fails in its primary operational and environmental mandates. The "uncertainty" regarding the identification and mitigation of deep-seated landslides suggests that the site may be fundamentally unsuitable for a reservoir of this type. It is stated in the DEIS that deep-seated and shallow landslides and debris flows have occurred in the study area, and twenty-seven potential deep-seated landslides were identified in the landslide evaluation (DEIS page 71 & 72).

The DEIS concludes that there is a probable significant adverse impact regarding landslide stability within the reservoir, which would result in increased sediment delivery to the river and potential risks to both the facility's operation and adjacent infrastructure. The inability to fully characterize and mitigate these deep-seated landslides and associated risks represents a significant technical red flag.

3.2. Construction Phase Risks

The construction period is estimated at 5 years requiring the diversion of the Chehalis River. The DEIS analyzes construction impacts based on "typical seasonal flows" (DEIS page 91). This is a dangerous simplification. If a major flood occurs during the construction phase (a 5-year window has a 23% - 41% chance of seeing a 10- or 20-year flood), the cofferdams and bypass channels could be overwhelmed. The DEIS acknowledges that these historical probabilities are shifting. Because "catastrophic" and "major" floods are becoming more frequent in the Chehalis Basin, the actual probability during the proposed construction window may be higher than these traditional statistical models suggest.

The flooding of an active dam construction site would release massive amounts of sediment, fuel, and construction debris into the river, causing catastrophic acute impacts to downstream aquatic life and water quality. The DEIS does not adequately analyze the "worst-case" scenario for a flood event during this vulnerable construction phase, representing a gap in technical risk assessment.

3.3. Seismic Hazards

The Pacific Northwest is a seismically active region (Cascadia Subduction Zone). The U.S. Geological Survey estimates a 15% chance of a magnitude 9 earthquake occurring on the Cascadia Subduction Zone in the next 50 years, during the design lifetime of the proposed dam[7]. The DEIS mentions seismic design criteria and acknowledges that dam failure during an earthquake while the reservoir is full has a "significant and unavoidable" impact (DEIS Section 5.2.2.1). While the probability is low, the consequence is total devastation of downstream communities. From a technical viability standpoint, introducing a high-hazard dam into a seismically active zone upstream of population centers is a risk that requires an extraordinarily high justification threshold and is one that the marginal flood reduction benefits of this project do not meet.

4. Mitigation Uncertainty and Feasibility

A central tenet of the State Environmental Policy Act (SEPA) is that an EIS must present mitigation measures that are not only proposed but are technically feasible and economically practicable. The measures described in the Proposed FRE Mitigation Plan (FCZD 2024) remain conceptual and lack the specificity and proven track record necessary to guarantee the offset of the project's severe impacts. This section critiques the mitigation strategies, highlighting the high degree of uncertainty that pervades the Applicant's proposal. We agree with the regulatory agency Washington Department of Fish and Wildlife (WDFW) who evaluated the Mitigation Plan and concluded that the plan does not sufficiently compensate for the scale, duration, and recurrence of impacts resulting from both construction and long-term operation of the FRE (WDFW 2025; Appendix E page 171).

[7] Wirth et al., 2025. Earthquake Probabilities and Hazards in the U.S. Pacific Northwest (ver. 1.1, September 30, 2025): U.S. Geological Survey Fact Sheet 2025–3050. https://doi.org/10.3133/fs20253050

4.1. Unproven Efficacy of Fish Passage Facilities

The mitigation of fish passage impacts during construction and operation relies on a Fish Passage Facility (FPF) and trap-and-transport operations. The DEIS Fish Species and Habitats Discipline Report assigns survival estimates to these facilities yet explicitly acknowledges high uncertainty. The DEIS assumes that adult salmon and steelhead will successfully locate the FPF entrance amidst complex hydraulic signals, voluntarily enter, survive the handling/transport process of trap-and-haul techniques, and successfully spawn upon release upstream. This chain of assumptions ignores the cumulative stress effects on pre-spawn fish. Furthermore, during flood retention events, downstream passage for juvenile fish is completely blocked. Holding fish in the reservoir or assuming they will "sound" and exit via deep conduits is speculative. There is no comparable facility in the region that demonstrates the successful passage of wild salmonid stocks through a flood retention structure of this magnitude without significant population decline.

Although the salmonid species in the Chehalis Basin are not yet listed as threatened or endangered under the Endangered Species Act, the National Marine Fisheries' Service (NMFS) Anadromous Salmonid Fish Passage Facility Design Manual (2022) has applicable design criteria for the proposed dam facility. The NMFS manual would consider the proposed dam as 'experimental technology' because it has not been proven effective at similar sites and is a novel application. There is significant uncertainty about the efficacy of the proposed facilities for weak swimmers like juvenile spring Chinook salmon and lamprey.

4.2. The Inadequacy of the Water Quality Mitigation Plan

The Applicant proposes a "Surface Water Quality Mitigation Plan" in Appendix E to address the significant temperature increases caused by the reservoir's solar heating. This plan relies largely on riparian planting elsewhere in the basin to create "thermal credits" to offset the localized heating. This approach is fundamentally flawed for three reasons.

First, thermal impacts are spatially explicit. Cooling a tributary ten miles downstream does not mitigate the thermal barrier created at the dam site, which blocks upstream migration to cool water refugia. The impact is a site-specific blockage, not just a net thermal loading issue. True mitigation requires addressing root causes of degradation, not merely offsetting them with out-of-kind credits.

Second, the efficacy of riparian planting as a mitigation tool operates on a decadal timescale. The temperature impacts of the dam (removal of shade) are immediate upon construction. The mitigation (growth of new trees) takes 20 to 50 years to mature. This "temporal loss" is acknowledged in the DEIS but not adequately accounted for. During the intervening decades, fish populations would be subjected to lethal or sub-lethal temperatures, potentially driving them below recovery thresholds before the mitigation matures. The DEIS states there is "uncertainty around whether the implementation of a plan is technically feasible and economically practicable", essentially admitting that the water quality impacts may be unmitigable.

Third, the project sponsors approach relies on voluntary landowners to allow mitigation on their property. As described in the Wetlands and Land Use analyses, compensatory mitigation for

permanent wetland and riparian losses lack secured sites or binding land acquisition commitments. It is our understanding that the project sponsors do not have formal permission from willing landowners, instead relying on generic inquiries about if potential landowners would like to have trees planted on their property. A verbal confirmation of such a vague request does not constitute a binding agreement and does not provide the security needed to mitigate such a significant adverse environmental impact.

4.3. Habitat Replacement and "No Net Loss"

The Proposed Action involves the permanent loss of wetland and riparian habitats within the facility footprint and the degradation of habitats within the inundation zone. The Applicant proposes compensatory mitigation through land acquisition and restoration. However, the DEIS notes that specific properties for mitigation have not been acquired, and the availability of suitable land is unknown (Appendix E, Section 3.2.6).

Furthermore, replacing high-functioning, mature riparian corridors in the upper basin with restored agricultural land elsewhere does not constitute "in-kind" mitigation. The upper basin habitat is unique in its geomorphic position and role for spring-run Chinook. The "No Net Loss" standard required by Lewis County Shoreline Master Program and state regulations is unlikely to be met given the unique quality of the habitat being destroyed. The DEIS finding of "significant and unavoidable adverse environmental impacts" to wetlands and land use confirms that the proposed mitigation is insufficient to reduce impacts to a non-significant level. The DEIS admits that while mitigation is proposed, the success of that mitigation is not guaranteed to prevent population decline (Appendix E, Aquatic Species).

4.4. Defective Reliance on Adaptive Management

The DEIS frequently invokes "adaptive management" as a solution to uncertainty. While adaptive management is a valid scientific tool, it is not a substitute for feasible mitigation design. In the context of the FRE, adaptive management is proposed for issues like landslide stabilization and fish passage efficiency. However, if the fundamental design of the dam causes turbidity or blocks fish, "adjusting" operations may not be physically possible without compromising the flood reduction purpose. Relying on future, undefined adjustments to solve fundamental biophysical conflicts creates an unacceptable risk for the state and the ecosystem. We agree with WDFW who identified lack of clear demonstration of ecological lift and functional gain from these mitigation activities, and key deficiencies in the magnitude of mitigation proposed, temporal loss compensation, adaptive management, and long-term habitat protection (Appendix E, page 171).

5. Analytical Asymmetry: The Imbalance Between FRE and Local Actions

A robust EIS must evaluate reasonable alternatives to a comparable level of detail to allow decision-makers to make an informed choice. The Revised Draft EIS exhibits a stark analytical asymmetry between the Proposed Action (FRE) and the Local Actions Alternative. This imbalance biases the outcome in favor of the structural solution by presenting it as a concrete, engineered plan, while treating the non-structural alternative as a vague, conceptual sketch.

This asymmetry was a key concern raised in American Rivers' 2020 comments, Governor Inslee's July 22, 2020 letter, and it persists in the 2025 analysis.

We understand that a historic lack of investment by OCB in non-dam alternatives has resulted in some local actions being at a conceptual or early stage of engineering, making it difficult for the SEPA lead official to fully analyze them in the DEIS. However, the lack of advancement and analysis in non-dam alternatives means the DEIS is insufficient for decision-making until all alternatives are evaluated consistently.

5.1. Disparity in Engineering and Design Effort

The FRE facility is presented with advanced engineering designs, including specific locations for quarries, access roads, and detailed hydraulic operational plans. The DEIS dedicates hundreds of pages to the specifics of the dam's geometry, concrete composition, and construction phasing.

In contrast, the Local Actions Alternative, which includes components of the Local Actions Non-Dam (LAND) Alternative such as structural and non-structural measures, is described as "preliminary and conceptual" with "a high level of uncertainty about the specific locations, extents, design, and associated impacts that would be expected from project components" (Appendix E, Section 3.3). The description of local actions relies on broad categories like "floodproofing" and "land use management" without the site-specific engineering applied to the dam. This lack of definition and modeling leads the DEIS to repeatedly state that impacts and benefits of the Local Actions are "unknown" or "would likely be" significant or less than significant due to lack of specificity (DEIS, Section 5.1.3). This prevents a rigorous quantitative comparison. For example, the flood reduction benefits of the Local Actions alternative were not modeled, potentially underrepresenting the efficacy of strategic setback levees, floodproofing, conveyance improvements at the Mellen Street Bridge, and local land use and development regulatory improvements widely considered best management practices for mitigating flood damage.

5.2. Failure to Optimize the Local Actions Alternative

The "Local Actions Alternative" presented appears to be a collection of disparate measures rather than a cohesive, optimized strategy. An integrated floodplain management approach would combine aggressive floodproofing, strategic buyout of the most hazardous properties, targeted conveyance improvements (like the Mellen Street work), upstream floodplain restoration, and strategic structural flood protection measures into a unified system.

By treating these elements piecemeal, the DEIS fails to capture their synergistic benefits. The study by Moffat & Nichol in Appendix 1 shows flood protection as a coordinated, multi-component system rather than isolated projects. For instance, implementation is phased and can have prioritized actions, there is transportation and flood infrastructure coordination with combined use of levees and floodwalls, and specific constriction points within the Chehalis Basin are targeted. When addressed together, the entire Basin could experience peak-flow reductions. The current DEIS dismisses or under-analyzes these non-dam combinations, defaulting to the assumption that only a dam can manage "catastrophic" floods.

5.3. Omission of Cost-Benefit Analysis Context

While SEPA does not strictly require a cost-benefit analysis (CBA), the decision-making context of the Chehalis Basin Strategy relies heavily on economic justification. The analytical asymmetry extends to economics; the costs of the dam are high but quantified (over $2 billion), while the long-term economic benefits of the Local Actions Alternative such as reduced maintenance liabilities, avoided ecological damage costs, and increased recreational value are not fully monetized or integrated into the comparison. The "No Action" alternative is also framed as a baseline of continued destruction from flooding, rather than an opportunity to implement aggressive non-structural resilience measures that are cost-effective and ecologically sound.

6. Hazard Creep and False Sense of Security

History demonstrates that structural flood control measures often lead to the "safe development paradox" or hazard creep where the construction of levees and dams encourages new development in the floodplain. This can ultimately increase the aggregate risk when the infrastructure fails or is overwhelmed by events exceeding its design capacity. American Rivers is a national leader in dam removal and dam safety. Examples from across the country show that dams are not permanent and once they are constructed, people move into the former floodplains downstream. This provides a false sense of security and enables unsafe development practices that will put future generations at higher flood risk. The Chehalis FRE project presents a classic case of this hazard, a concern explicitly raised in 2020 and reinforced by the 2025 data.

6.1. The Safe Development Paradox

The DEIS models the FRE facility to remove flood risk for approximately 331 structures and 2,975 acres during a late-century major flood (Summary, page S-11). While this provides immediate relief to existing assets, it reclassifies thousands of acres of floodplain as "protected." This reclassification often signals to developers and local governments that these areas are now safe for densification[8]. Even FEMA and the National Flood Insurance Program (NFIP) acknowledge the limitations of reclassifications and remapping of the floodplain by citing that “over the past 10 years (2014 - 2024), nearly one-third of NFIP flood insurance claims (29%) came from areas located outside of current high-risk flood areas” with the average payment for claims at $82,614[9].

The Land Use Discipline Report briefly mentions the potential for indirect effects related to increased development but relies on "planning and regulatory processes" to mitigate this. This reliance is naive. Pressure to develop "reclaimed" floodplain land is intense and Lewis County, the City of Centralia, and Chehalis have had ample time to adopt safer floodplain development standards. Despite this repeated advice from experts, they have failed to do so. If the FRE

[8] Haer et. al., 2020. The Safe Development Paradox: An Agent-based Model for Flood Risk Under Climate Change in the European Union. *Global Environmental Change*, January 2020. https://doi.org/10.1016/j.gloenvcha.2019.102009

[9] FEMA, 2025. *What’s Your Flood Risk?* www.floodsmart.gov. Accessed January 21, 2026.

allows for the expansion of development in Centralia and Chehalis into historic floodplains, the value of assets at risk will skyrocket, and this "hazard creep" essentially transfers the risk from the present to the future.

6.2. Catastrophic Failure and Residual Risk

The DEIS acknowledges the risk of "catastrophic failure" of the FRE structure, noting that such an event, though unlikely, would cause loss of life, extensive damage, and potentially inundate the Chehalis Reservation. The more likely risk is the "design exceedance" event. The FRE is designed for a specific hydrologic profile. If a flood occurs that exceeds the dam's capacity (a scenario becoming more probable with climate change), the resulting release (spillway engagement) could be sudden and damaging.

Communities downstream, believing themselves "flood-proofed" by the dam, may reduce their individual preparedness (e.g., not maintaining flood insurance, not floodproofing homes). When a flood exceeds the dam's capacity, the damage is often worse than if the community had remained adapted to periodic flooding. This "residual risk" is a hidden cost of the structural alternative that the Local Actions Alternative (which removes people from the hazard zone) avoids entirely.

6.3. Climate Change and Hydrologic Obsolescence

The DEIS incorporates climate change modeling, showing peak flow increases of up to 55% by late-century. This profound shift in hydrology threatens to render the FRE obsolete before it completes its service life. A dam designed for 2030 hydrology may be undersized for 2080 flows. The Applicant's response to this "adaptable design" is to potentially raise the dam later, but this would entail further environmental destruction and cost.

If the dam's capacity is overwhelmed more frequently due to climate change, the "protection" it offers degrades. Conversely, the "false sense of security" remains fixed in the public imagination. The result is a community that is less resilient to the extreme events of the future. The Local Action Alternative prioritizes "room for the river" which expands flood conveyance and storage capacity. This is a strategy that becomes *more* effective as flows increase, unlike fixed reservoirs which have hard capacity limits.

7. Is It Worth It?

Washington state is prioritizing the removal of unnecessary water retention structures and WDFW and the Department of Natural Resources have been explicitly mandated to invest in programs, tools, and staffing to quantify and remove derelict structures and fish passage barriers, often under federal court orders. Constructing this FRE on the last large river in the state without a major dam would be taking a major step back on state priorities. Significant and unavoidable impacts to fish, wildlife, cultural resources, and the environment is not a price the residents of the Chehalis basin can afford. Any mitigation strategies proposed to offset these impacts have not been evaluated for feasibility and economic viability.

At a price of $2+ billion dollars with no clear ownership, funding plans, or responsible parties for the operation and maintenance of a dam, the FRE is just **not** worth it.

7.1 Cost-benefit

Every dollar not invested in disaster resilience today can cost communities up to $33 in lost future economic activity[10]. Communities in the Chehalis Basin cannot wait till 2036 to have a functional FRE facility with a price tag of $2+ billion when flooding events are becoming more frequent and severe. The cost of the FRE may be an underestimate given its geologic setting in sedimentary units and long construction timeline making cost overruns likely[11]. Besides the cost of the FRE itself, things like salmon populations, ecosystem services, and areas and artefacts of cultural significance have an inherent value that could never be fully recovered or paid for.

The Local Actions Non-Dam Alternative is estimated to cost between $850 and $1.5 billion including contingency for the permitting, mobilization and demobilization, levee construction, floodwalls, road raising, interior drainage, real estate costs, and bridges. The LAND offers a phased construction approach where actions that increase the resiliency of the community during *any* level of flooding can be taken within the next decade[12].

7.2 No Pathway for Construction Funding

It has not been stated in the DEIS how $2+ Billion for construction, operation, and maintenance of the FRE would be funded. Currently, there has been a pullback in federal funds and the Washington state budget is in deficit. There has been no mention of a phased funding approach and garnering $2+ billion dollars at once will be nearly impossible given the decline in federal and state funding opportunities.

Alternatively, the phased construction approach of the LAND benefits from a phased funding strategy aligned with existing funding programs and authorities. The U.S. Army Corps of Engineers (USACE) have multiple programs to aid the design, construction and maintenance of new setback levees proposed in the LAND including: General Investigations, Section 205 – Flood Control, Section 1135 – Project Modification for Improvement of the Environment, Section 203 – Tribal Partnership Program, and the PL 84-99 program which can help rehabilitate levees before a disaster and respond and manage the system during an emergency.

Communities can also develop Locally Preferred Plans with USACE and develop cost sharing agreements through existing authorities to implement so community needs can be reflected in the USACE designs and construction.

FEMA's Flood Mitigation Assistance (FMA) Program provides funding for flood proofing, elevations, acquisitions, and relocations for NFIP insured properties. The state also has multiple funding sources for levee construction and floodplain acquisition and restoration efforts and there is growing momentum to set up a buyout and acquisition fund which could support non-structural elements of the LAND.

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[10] U.S. Chamber of Commerce, 2025. 2025 Resilience Report- Beyond the Payoff: How Investments in Resilience and Disaster Preparedness Protect Communities. www.uschamber.com. PDF download.
[11] Peterham and McMahon, 2019. Dams, dam costs, and damnable cost overruns. *Journal of Hydrology*, Volume 3, April 2019. https://doi.org/10.1016/j.hydroa.2019.100026
[12] Moffatt & Nichol, 2025. Chehalis Basin Local Actions Non-Dam (LAND) Alternative. www.ecology.wa.gov. PDF download.

All of this together allows for flexibility in the timing, requested amount, and funding sources that can be used to construct, operate, and maintain each aspect of the LAND.

7.3 No Clear Ownership

Hundreds of pages of documents have been produced as part of the DEIS for this FRE, but nowhere is it clearly stated who will own and operate the FRE facility once it is constructed. Not stating (or knowing) who would own and operate the FRE diminishes accountability and signifies another aspect of the FRE plans that is being put off for the future.

7.4 Long Timeline

The FRE is commonly framed as “ready-to-go”, but the reality is that it is still only at ~60% design and must still navigate a variety of permits, acquisitions, and fundraising hurdles, as well as overcome any opposition or legal challenges. This, coupled with a 5-year construction window, means that even under the best circumstances for the project sponsor, this facility is still 10+ years out from actual operations. This is not a near-term solution to reduce flood damage in the Basin but a long-term project with questionable outcomes as we have noted throughout these comments.

7.5 Actual Flood Damage Reduction

The dam would only activate at 38,800 cubic feet per second (cfs) at the Grand Mound gauge. As noted by the project sponsors, this has only occurred 3 times in the last 20 years. Many structures will continue to be impacted by flood events that are below this benchmark of 38,000 cfs for a major flooding event. These unprotected structures are left vulnerable in a reality where more frequent flood events are expected due to climate change. The peak flow measured during the recent atmospheric river events in December 2025 measured at the Grand Mound gauge was approximately 31,500 cfs (provisional data)[13] and would not have engaged the proposed dam.

It is often cited that the Proposed Action would reduce flood closures of Interstate 5, which impacted the local and regional economy in 2007 and 2009. While some estimates put the economic impact of these closures in the hundreds of millions, it is worth noting that WSDOT estimates Interstate 90 over Snoqualmie Pass closes an average of 18 times each winter[14].This has prompted the state to invest heavily in roadway improvements and staffing to manage winter storms, not build infrastructure at the cost of billions of dollars to control natural processes at the expense of the environment. While other strategies to reduce flooding on Interstate 5 have been investigated, the LAND was not given authority by OCB to do so.

Conclusion and Recommendations

The Revised Draft EIS for the Chehalis River Basin Flood Damage Reduction Project paints a clear picture: the proposed Flood Retention Expandable facility is a 20th-century structural

[13] USGS, 2025. *Monitoring Location Chehalis River Near Grand Mound, WA- USGS-12027500.* www.waterdata.usgs.gov. Accessed January 20, 2025.
[14] WSDOT, 2024. WSDOT Snoqualmie Winter Operations Study December 2024. www.wsdot.wa.gov. PDF download.

solution applied to a 21st-century problem. It attempts to wrestle a dynamic river system into submission at the cost of the very ecosystem the state is legally mandated to restore.

The DEIS demonstrates that the Proposed Action:

1. **Is not aligned with RCW 43.21A.73** by significantly degrading aquatic species recovery, specifically driving spring-run Chinook toward extirpation.
2. **Relies on uncertain and unproven mitigation** technologies that have failed elsewhere and cannot guarantee "no net loss."
3. **Suffers from analytical bias** by comparing a detailed dam design against a conceptual local alternative, thus skewing the feasibility comparison.
4. **Increases long-term risk** through hazard creep and climate obsolescence, creating a "safe development paradox."
5. **Infringes upon Tribal Sovereignty** by impacting Tribal and cultural resources, particularly those related to sense of place, access, and ongoing cultural practices.
6. **Is not worth it!**

Recommendations

As an organization founded on protecting and restoring rivers for people and nature, we recommend the following:

1. **Selection of the Local Actions Alternative (Expanded):** The state should pivot resources to fully engineer and implement the Local Actions Alternative. This should be expanded beyond the current scope to include proposed levee setbacks, flood conveyance, floodplain restoration, and large-scale floodproofing, elevations, or voluntary acquisitions of at-risk properties. This approach aligns with the resilience and ecological restoration authority of the Office of Chehalis Basin.
2. **Determine significant adverse impacts from the proposed action:** Given the significant unavoidable impacts to aquatic species, ecologically important habitats, and tribal resources, specific permits for the FRE facility should be denied under current state laws (SEPA, Hydraulic Code) and federal obligations (Treaty Rights, Clean Water Act). Feasibility of the proposed mitigation plans should be evaluated before the decision is made to include the FRE in the Chehalis Basin long-term strategy. We also recommend additional mitigation actions be performed based on the environmental and cultural impacts identified in the DEIS.

The Chehalis Basin needs durable solutions that will increase ecosystem and community resilience in the face of climate change. Constructing a dam that diminishes the vitality of a river system and its inhabitants is not the answer. Integrated local floodplain management actions offer a solution that can be phased, adapted, and mutually beneficial for Chehalis Basin’s people and its salmon for generations to come. The choice, supported by the data in this DEIS, is clear: the dam must not be built.