

## Organizations

ORGANIZATION NAME	FIRST NAME	LAST NAME	DATE
American Rivers and Trout Unlimited	Luke	Kelly	11/14/2016
American Rivers, Citizens for a Clean Harbor, Trout Unlimited, Washington Wild, and the Wild Steelhead Coalition	Wendy	McDermott	11/14/2016
American Whitewater	Megan	Hooker	11/14/2016
American Whitewater	Jon	Albright	11/14/2016
Audubon Washington	Trina	Bayard	11/10/2016
Center for Environmental Law & Policy	Trish	Rolfe	11/14/2016
Centralia Christian School	Ann	Stout	11/1/2016
Centralia Christian School Foundation	Dan	Swecker	10/17/2016
Centralia College	Cristi	Heitschmidt	10/18/2016
Chehalis Basin Fisheries Task Force	Lonnie	Crumley	11/9/2016
Chehalis Basin Lead Entity Habitat Work Group	Kirsten	Harma	11/14/2016
Chehalis Community Renaissance Team	Annalee	Tobey	11/14/2016
Citizens for a Clean Harbor	Fred	Rakevich	10/31/2016
Friends of Grays Harbor	Arthur	Grunbaum	11/14/2016
Friends of the Chehalis Community Renaissance	David	Hartz	10/21/2016
Grays Harbor Audubon Society	Janet	Strong	11/14/2016
Great Old Broads for Wilderness, Polly Dyer Cascadia Broadband	Shelley	Spalding	11/14/2016
Health and Hope Medical Outreach	Mickey	Lofgren	10/18/2016
Lewis County Farm Bureau	Maureen	Harckom	10/26/2016
North Beach Association	Lee	Riener	10/29/2016
Northwest Steelhead and Salmon Conservation Society	Don	Schluter	11/1/2016
S.W. Washington Fair Commission	Julie	Balmelli-Powe	11/14/2016
Sierra Club	Elaine	Packard	11/14/2016
The Industrial Commission	Thomas D.	Bradley	11/14/2016
United Way of Lewis County	Angela	French	10/18/2016
United Way of Lewis County	Linda	Lee	10/18/2016
University of Washington Climate Impacts Group (moved to Citizen comments)	Guillaume	Mauger	11/14/2016
Washington Recreational River Runners	William	Buchan	11/9/2016
Washington State Dairy Federation	Dan	Wood	11/14/2016
Weed Warriors. Nature Stewards Program	Grace	Stiller	11/1/2016
Wild Fish Conservancy	Kurt	Beardslee	11/14/2016
Wise Use Movement	Jack	de Yonge	11/13/2016

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Dear Mr. White,

Please accept the attached joint comments on the Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement (PEIS) on behalf of American Rivers and Trout Unlimited. We appreciate the opportunity to comment on this important process.

Thank you,

Luke



Luke Kelly  
Restoration Project Manager  
360-789-8282

# American Rivers • Trout Unlimited

November 14, 2016

Gordon White  
Program Manager, Shorelines and Environmental Assistance  
Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

RE: Comments on Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement

Dear Mr. White,

Please accept these joint comments for the record on the Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement (PEIS) on behalf of American Rivers and Trout Unlimited. The comments below include general comments followed by more detailed technical comments on each of the alternatives proposed in the PEIS.

- American Rivers' mission is to protect wild rivers, restore damaged rivers, and conserve clean water for people and nature. American Rivers' Northwest Office seeks to preserve the region's most valuable rivers, to protect remaining wild, free-flowing waterways, to conserve fish and wildlife, and to improve and enhance recreation opportunities.
- Trout Unlimited's mission is to conserve, protect, and restore North America's coldwater fisheries and their watersheds. TU's organizational goal is that by the next generation, we will ensure that robust populations of native and wild coldwater fish once again thrive within their North American range.

## GENERAL COMMENTS

- 1) No action is not an alternative for the fish and wildlife of the Chehalis basin, which are declining under current conditions and will decline faster as climate changes. No action is also not acceptable for the people of the Chehalis basin or for the nation, given how important I-5 is. Action is needed. However, given how long the flood proposals will take to implement, especially the dams which will be mired in controversy for years, early action on habitat and local flood damage reduction is needed now and should continue regardless of the status of the flood projects.
- 2) The Restorative Flood Protection actions (RFP), Aquatic Species Restoration actions (ASR), and Local Flood Damage Reduction actions are strongly supported. The Chehalis Basin is the second largest watershed in the state and it supports what is likely the largest floodplain matrix in the state. The watershed supports the highest diversity of amphibians in the state, including species protected under the Endangered Species Act (ESA) such as Oregon Spotted Frog, as well as salmon and steelhead populations that have been on a downward trend toward ESA listings, and serves as a key upland habitat connection between the Cascades and Olympics. The RFP and ASR actions will have significant positive impacts on salmon, amphibians, and other species by restoring habitat, the natural river channel and floodplain processes, and landscape habitat connectivity. Restoring these

natural processes will also reduce flood damage by buffering high flow events and work in concert with Local Flood Damage Reductions actions. These actions should be selected to move forward.

3) Appendix C: Draft economic study update – Executive Summary

Under Alternative 1 and Alternative 2 sections, it states:

*“For the purposes of the economic study, the benefits and costs of Alternative 1 (and 2) do not include the Aberdeen/Hoquiam North Shore Levee, Local Projects, Land Use Management, and Flood Warning System Improvements. Information on the costs and impacts for these action elements were not available at the time of this study as these action elements are in the early stage of the planning process.” (similar language for Alternatives 3 and 4)*

The benefits and costs from these action items should be included in the economic study before any decisions are made, particularly on Alternatives 1 and 2. This is because the ecological and economic impacts resulting from any of the actions in Alternative 1 or 2 will be significant (“long-term significant adverse impacts of the Flood Retention Facility would be greater than the rest of the action elements” section 4.1.4), and a better understanding of what implications are at hand with each action are critical to making informed decisions at this stage in the process, rather than down the line when a project level EIS is proposed and other alternatives are off the table.

4) The economic analysis for the PEIS actions items should include accounting for Ecosystem Services before any decisions are made on alternatives that could negatively impact these highly valuable and all too often overlooked services. Ecosystem services include a multitude of benefits, including nutrient cycling, air and water purification, carbon sequestration, and climate regulation.

“Ecosystem services” are not mentioned anywhere in the draft PEIS, and this is cause for concern. Thankfully, from what we understand, the state is funding an ecosystem services analysis of the Chehalis Watershed. The study is currently underway, and results are expected to be out in late spring/early summer of 2017. These results should be applied to the cost/benefit analysis of the PEIS alternatives before any decisions are made, particularly on the FRFA and FRO alternatives because the “long-term significant adverse impacts of the Flood Retention Facility would be greater than the rest of the action elements”, as stated in section 4.1.4.

5) The combined approach of integrating restoration into each alternative seems disingenuous by obscuring the detrimental effects of the dam alternatives on wildlife. Overall, there are no examples where dams have shown a long-term benefit to native wildlife. It would make more sense to address restoration actions and their benefits separately from the flood-control alternatives.

6) Recommend dividing some of the packaged alternatives into smaller individual alternatives. For example, the airport levee improvements and Aberdeen/Hoquiam north shore levee actions are packaged with Alternatives 1 and 2, and I-5 projects only in Alternative 2, but not an option with Alternatives 3 and 4.

7) There is little discussion or evaluation on effects of the alternatives on non-salmonid wildlife species. All of the modeled changes to population numbers and habitat suitability focus on salmon, but they do not live in isolation; salmon require healthy and resilient ecosystems. In particular, one major unresolved question is how reduced flooding events will alter the extent of ephemeral wetlands, connectivity of floodplain wetlands to the mainstem, and wetland hydroperiod. While the PEIS acknowledges that wetlands and periodically inundated areas will be reduced under Alternative

1, the quantitative data is missing. Summary tables, maps, and models are needed to assess the impact to species, such as amphibians, that use these wetlands to overwinter or breed.

- 8) It is not clear if all wetland types are included in the “Modeled Wetlands Inventory” (page 127). For instance, many temporary wetlands cannot be identified from aerial photographs, especially if photos were taken in the late summer or early fall under dryer conditions. Temporary and isolated or semi-connected wetlands provide critical overwintering habitat for fish and waterfowl, while also providing habitat for amphibian breeding and development in late winter. These wetlands are likely very sensitive to reduced flooding events.
- 9) Alternatives 1 and 2 mention that wetlands will be lost or damaged during various construction projects, but that this will be mitigated. Yet, consensus from scientific literature is that created and restored wetlands often do not functionally match natural wetlands. The PEIS appears to boldly assume that any wetland damage can be mitigated.

### **FRFA – FLOOD RETENTION AND FLOW AUGMENTATION DAM**

**A flood-retention flow-augmentation (FRFA) dam will not meet the needs for both flood-damage reduction and enhanced aquatic ecosystems in the Chehalis Basin. The environmental and socioeconomic costs of an FRFA structure far outweigh the perceived benefits.**

- 1) *An FRFA dam facility will have enormous environmental impacts and devastating impacts on native salmonid and amphibian species.* Conversion of the Chehalis River to a permanent reservoir impoundment will remove hundreds of acres of forest and wetland, impair water quality, reduce fish-passage, reduce aquatic habitat quality, reduce salmonid survival across the basin, impair migration corridors for terrestrial species, inhibit sediment and debris transport, and induce negative geomorphic changes up and downstream for decades to come. These impacts blatantly conflict with one of the two primary objectives of the Chehalis Strategy; to protect and restore aquatic species habitat.
- 2) *There are major information gaps in the analysis of the two dam alternatives.* If they go forward, a project level EIS needs to closely analyze critical uncertainties or loose assumptions regarding the technical feasibility, environmental impacts and cost-benefit ratios of the dam alternatives. Specifically: the costs of the dams appear to be understated; the analysis of sediment transport in the dams and downstream of them is weak; and the feasibility of fish passage, including for non-salmonids such as lamprey, needs to be examined more closely. In addition, building these dams will almost certainly encourage development of downstream floodplains, further degrading habitat and putting more people at risk during large flood events. We should not set up the conditions like those on the Puyallup or Green River floodplains that have put communities at risk and degraded salmon runs.
- 3) *Both of the dam alternatives considered would disrupt and degrade geomorphic, hydrologic, and ecological functions of the Chehalis River Basin.* Human activities have altered the watershed over the past century, which has significantly impaired natural functions and resulted in increasing flood damage, degraded habitat, and fish population declines. In order to effectively address flooding issues, habitat degradation, and threats from climate change, we must build natural processes and climate resiliency, not build dams

- 4) *Millions of dollars are spent each year to reverse the impacts of dams on aquatic species in Washington State.* An FRFA dam will lead to a hydrologically altered system even with careful planning for flow maintenance. Flow management is not typically successful at recreating natural flow regimes and altered flow can negatively impact habitat, macroinvertebrate communities, and hyporheic exchange, among many other factors. Even with the potential benefits of augmented summer flows the PEIS demonstrates that Chehalis aquatic species will decline if an FRFA facility is constructed. We strongly question the proposition of a new dam where alternatives, such as mixed non-structural and restorative approaches exist that have been shown to dramatically benefit aquatic species and reduce flood damage. For instance, restorative flood measures accompanied by local-scale flood mitigation practices can meet both clearly stated objectives of the Chehalis Strategy. Washington's communities and ecosystems don't need another dam and the economic and ecological burdens that come with it.
- 5) *Dams have contributed to the listing of dozens of Washington's native aquatic species on the Endangered Species List.* While none of the Chehalis populations of salmonids or lamprey are currently listed as threatened or endangered, some may soon be candidates for listing without the right intervention. A dam will further reduce aquatic species in the Chehalis Basin. Of particular concern is the susceptibility of lamprey, a species of significant value to the Quinault and Chehalis Tribes, to extirpation from the basin as a result of blocked passage. Proposed fish-passage mechanisms for both FRFA and FRO dams are likely to have low success rates at passing lamprey, since there are no proven examples to draw upon.
- 6) *Fisheries impacts from the FRFA and FRO dams would go far beyond the local area.* When one population of salmon is degraded or threatened, it can close fisheries on other species due to bycatch concerns and "take" limitations on ESA listed species, which share ocean habitats with Chehalis origin salmon. Therefore, negative impacts to Chehalis origin salmon can have influence on commercial fisheries taking place elsewhere in Washington as well as in Canada, Alaska, etc.
- 7) *The proposed impact of the dam's cold-water releases on spring chinook behavior is qualitative, with no certainty that positive impacts will occur.* Section 4.2.4.2.1: "The behavioral response of adult spring chinook salmon in the Chehalis River to modulating temperature and flow from the FRFA facility is unknown and represents a key uncertainty..." (Appendix K). Additionally, cool-water releases may be phosphorus rich and could contain toxic algae. This is not fully addressed in the EIS, and seems like a large oversight. Overall, the FRFA dam cannot be justified based on its assumed benefits to stream temperature and aquatic species.
- 8) *Salmon population projections do not include mortality due to fish passage.* While passage rates are included (page 286), these numbers are not included into any sort of population model to see how long we will have sustainable runs of salmon, steelhead, and lamprey. This seems like a major oversight when considering the long-term impacts of a dam and the goal to avoid future ESA listings.
- 9) *Impacts of the dam proposals on fish passage are a major concern.* Once fish navigate the relatively long fish ladder, exhausted fish must then navigate the reservoir with unnatural environmental conditions. Furthermore, the environmental conditions caused by the FRFA reservoir are conducive to invasive fish species and not conducive to salmonids, as can be seen in the Columbia River, where resources used for controlling predatory invasive fish (e.g. pikeminnow) could be utilized on more effective salmon recovery efforts.

- 10) *We are skeptical of the “change in abundance” figures for salmon as it relates to impacts from the FRFA and FRO dams. A decrease of only 1-4% for all salmon species seems unlikely, when looking at historical abundance of salmon in other watersheds before dams were installed and the current abundance after a dam has been in place for some time. In short, time and again, dams have been proven to contribute to major declines in salmon abundance all across the Northwest.*
- 11) *Extirpation of Lamprey in the Upper Chehalis above the proposed dam locations is unacceptable – Section 4.2.4.2.1 states: “FRFA dam (adult passage estimates range from 40% to 60%; juvenile downstream passage estimates range from 0.3% to 0.6%)”; “The fish passage facilities associated with the FRFA dam could nearly eliminate downstream passage for lamprey. Over the long term, the challenge of passing lamprey downstream around the FRFA dam could prevent lamprey from migrating to the ocean, leading to local reductions in the population, and possibly the elimination of lamprey upstream of the dam.”*

This is an unacceptable outcome in our opinion, and we strongly recommend that the FRFA dam not move forward for this fact alone.

- 12) *Projected population impacts do not address impacts on native species of amphibians, invertebrates, or waterfowl. Why do the projected population numbers only focus on salmon? What about other native fish and amphibians (Page 471-472: The loss of wetlands would likely have significant adverse effects to amphibian populations as well as possibly invertebrate and waterfowl populations as well)? This is largely overlooked in the PEIS.*
- 13) *Further analysis on the impacts to terrestrial species and wildlife corridors is needed. Section 4.2.4.2.2 and figure 4.2-10 on Page 300, identifies the FRFA impacts on wildlife, and figure 4.2-10 shows that the dam would impact a major elk migration corridor. Further analysis of impacts to these corridors needs to be completed, and how these impacts will affect terrestrial species over the long term needs to be analyzed, quantified, and included in the cost/benefit analysis of Alternative 1.*
- 14) *There is no assurance that wetland mitigation and restoration efforts will be adequate. Pages 367, 382, 396, 423: “Temporarily disturbed areas would be restored to pre-construction status and/or function following construction.” This appears to be a blanket statement, but all too often created and mitigated wetlands do not functionally match undisturbed conditions.*
- 15) *An FRFA dam facility will have wide-reaching socioeconomic costs, while producing benefits to only a few. Constructing an FRFA dam will be very expensive to build, and then maintain for the decades to come. All of Washington’s citizens will foot this bill, while only some may feel the benefits of reduced flood-damage costs. An FRFA facility may arguably be most costly to members of the Chehalis and Quinault Nations, whom face significant cultural loss as salmon and lamprey populations dwindle. In return, an FRFA facility could reduce 100-year flood stage at Grand Mount by a mere .9 ft (17%), and lessen the time transportation corridors are inundated by 1-3 days.*
- 16) *There are uncertain implications of a dam facility on legal water rights. Additional analysis is needed on the water rights in the Chehalis Basin so instream and out of stream use is better understood. In addition, the potential impacts to water supply and water rights resulting from each of the alternatives needs to be analyzed more closely before any decisions are made. For example,*

expectations need to be clarified should any “new” water become available as a result of any of the proposed actions. Water quantity is a major concern in the Chehalis Basin, and the basin is already over appropriated. For example, the basin is “closed” to new water rights, water claims regularly exceed water availability, and junior water rights have experienced curtailments over the past two summers. These issues are present on the tributaries and on the main stem, and appropriately, any solutions to water quantity and low flows need to be distributed throughout the basin and specifically designed to meet water needs for basin residents and instream use. The use of an FRFA dam as a “water storage” facility is not the right approach for meeting low instream flows and other water quantity needs in the basin. The summer flow augmentation concept proposed in the PEIS would not be natural and it would diminish the watershed’s natural ability to buffer low flows and high flows, working directly against building climate change resiliency and avoiding ESA listings. Details on what is needed to address low flows and water quantity in the basin are included in the *Chehalis Basin Watershed Management Plan* and accompanying technical reports.

- 17) *Groundwater modeling, quantifying the impacts on wells, and a theoretical revised water budget should all be completed before the FRFA option can proceed any further.* Regarding groundwater, the PEIS, section 4.2.1.2.3 states that there could be “changes to groundwater flow regime in downstream floodplain area” but “this has not be quantified.” The section concludes that there will not be adverse impacts on groundwater as a result of these actions. The fact that the studies have not been done on the connection between surface water and groundwater recharge and therefore the impacts are not known, appears to negate the validity of the “no impact” conclusion.
- 18) *Neither an FRFA nor FRO dam facility will control flooding on the South Fork Chehalis or Newaukum Rivers.* Proposed dams will only regulate high flows on the mainstem Chehalis above Pe Ell, WA. Communities will still be at risk of flood from tributary systems. This would be an enormously costly and impactful approach to solving only part of a problem.
- 19) *Neither an FRFA nor an FRO dam facility will eliminate flood risk in the Chehalis Basin. Residual flood risk will always remain.* Recent dam failures across the Southeastern United States during intense rain events demonstrate the reality of flood control infrastructure; they still hold risk. Failure of these structures can result in catastrophic losses, especially where those structures have encouraged floodplain development downstream.
- 20) *Washington State has an unprecedented opportunity to set an example for wiser, multi-benefit flood reduction strategies with permanent flood-risk reduction and enhanced ecosystem health.* Another dam will maintain the status quo in flood risk management and continue to degrade aquatic ecosystems, an especially disheartening outcome at a time when a new paradigm is needed most.
- 21) *Alternative 1 will dramatically alter water quality both in the reservoir and downstream.* While the PEIS discusses and models dissolved Oxygen and temperature, it glosses over or omits other serious concerns such as summertime phosphorus releases, harmful algal blooms, methylmercury bioaccumulation, and carbon emissions. Since reservoirs are proven to be large emitters of greenhouse gases, implementing a flood reduction strategy that further contributes to unnatural climate change is in conflict with the objectives of the Chehalis Strategy.

Cool-water summertime releases will come from the reservoir’s benthic waters (hypolimnion), which will be largely anoxic. Under anoxic conditions, phosphorus is released from sediments into the water column, which means that summertime cool-water releases could flush phosphorus

downstream and cause algal blooms and possible oxygen depletion. This needs to be modeled and evaluated.

Reservoirs can foster harmful algal blooms such as toxic cyanobacteria due to prime temperature, light, and nutrient conditions. These toxic blooms can travel hundreds of kilometers downstream.

Reservoirs promote methylmercury production due to fluctuating water levels and buildup in anoxic waters. Methylmercury bioaccumulates in the food web, with consequences for wildlife and human health. Mercury naturally occurs in soils and can also be atmospherically deposited. Current mercury concentrations in the proposed dam footprint and drainage area should be evaluated.

Reservoirs are known to be net sources of three greenhouse gases: carbon dioxide, methane, and nitrous oxide. While forest carbon storage was evaluated in the EIS, carbon release from a reservoir was not mentioned. Methane is a particularly potent greenhouse gas that is released from reservoirs, particularly in young reservoirs (< 10 years old) and in warm, eutrophic systems.

### **FRO - FLOOD RETENTION ONLY DAM**

**The FRO dam concept is largely unprecedented, and the design for such a facility doesn't seem to exist anywhere else. We acknowledge that the FRO design alternative was created to reconcile the water and fish passage impacts of typical dams, with the need for predictable structural flood control. While we are pleased to see this effort, we have serious concerns about the realistic capacity of a FRO dam to maintain hydrologic and geomorphic processes, and the effectiveness of such a structure overtime. We expect that much more analysis would be needed if the FRO alternative were to move forward for consideration. Below are some specific concerns:**

- 1) *The FRO dam concept is an unproven design and there is enormous uncertainty as to what it would entail. We expect that many more detailed studies are needed to understand how an FRO facility would actually work, and what impacts such a structure would have. The "devil is in the details", and we have few details to evaluate at this point.*
- 2) *Detailed analysis of the sediment transport capacity of a FRO dam facility is needed. An FRO design dam is described as having multiple 150 foot long culverts to support natural flows, with adequate capacity to maintain bedload sediment transport. However the PEIS states that "25-50% of the bedload would be retained by the FRO facility". This would likely result in a sediment starved channel downstream over time, affecting salmonid spawning productivity. Sediment will not be moved downstream during high-flow retention/impoundment periods when most bedload material would be naturally transported, and it seems unlikely that natural flushing will be adequate to remove the accumulated sediment from the FRO reservoir following impoundment. Based on our experiences with dam management, we strongly suspect that sediment would need manual removal over time. The PEIS fails to account for potential pollutants that could be trapped in this material and how it could be disposed of. Further investigation is needed.*
- 3) *There is no assurance that the capacity of an FRO facility to maintain natural flow regimes will not be impaired by accumulation of sediment and wood debris. These impacts will compound, especially following the small and more frequent flood events that don't trigger retention. Additionally, the FRO facility will act as a wood filter, and channel habitat impacts as a result of lack of large wood material conveyance through and below dam site are of major concern.*

- 4) *The impacts from the permanent loss of vegetation from the FRO facility needs to be analyzed in more detail.* In section 4.1.4, the PEIS indicates that there would be a “permanent of loss of vegetation: 6 acres for the FRO facility (in the dam footprint)...”. However, the vegetation impacts would likely be much more widespread as a result of the altered surface water and ground water flow regime. This unpredictable inundation would lead to changes in soil hydrology, bacterial and fungal assemblages, and the overall soil ecosystem within the inundation zone, and this should be addressed in the PEIS.

#### **LEVEES – AIRPORT LEVEE IMPROVEMENTS; ABERDEE/HOQUIAM NORTH SHORE LEVEE; I-5 PROJECTS**

**We have serious concerns about the effectiveness of levees to provide sustained flood-protection, and their implications on river-floodplain functions. Levees and bank-hardening practices simply move flood and erosion hazards downstream; we do not support this as wise-use of public funds to reduce flood damage and enhance aquatic ecosystems.**

- 1) *Levees come with high economic and environmental costs in return for uncertain levels of effectiveness.* Proposed directly along the river channel and accompanied by bank hardening of tributary streams, the North Shore levees would be especially degrading to the Chehalis Basin. Levees would come at the cost of permanent loss of 27,000 acres of wetland habitat, impaired channel-migration capacity, exacerbated flood and erosion hazards up and downstream, and years of continual maintenance costs. In return, the proposed North Shore levee could potentially protect 2,715 structures from large flood events. Even with the levee however, many homes and businesses will still be prone to flooding and require local flood-proofing investment. The cost-benefit ratio for the North Shore levees seems far from acceptable.
- 2) *Levees resist natural riverine processes, disconnect and degrade habitat, and move hazards elsewhere in a watershed.* Levees have been a reactive approach to flood-control for centuries in the United States, and have channelized and homogenized river systems across the country. While providing protection from small and medium floods to the lands directly behind them, levees exacerbate flood risk and erosion hazards elsewhere in a watershed. Levee and bank hardening practices disconnect rivers from floodplains and impede natural processes, such as channel migration and groundwater exchange, leading to degraded water quality and habitat for fish and wildlife.
- 3) *Levees incentivize new and continued development within flood hazard areas.* Levees create an inflated sense of flood protection within communities behind them, especially where those areas are deemed to be no longer within the flood hazard zone regulated by the National Flood Insurance Program. Even behind a levee, residual flood risk remains; all levees degrade overtime and many eventually fail. These structures create the potential for catastrophic flood loss, and such events have occurred time and again nationally. We strongly recommend stringent development restrictions be implemented with any levee construction to minimize flood damage impacts that would otherwise take place behind protective structures.
- 4) *Levees will be less effective as climate impacts intensify.* The effectiveness of levees to protect communities from flood will be reduced as flood magnitudes increase and sea-level rises overtime. Structures built now are unlikely to be as effective 25 or 50 years from now, especially in Cities of

Aberdeen and Hoquiam which face impacts from sea level rise. With such changes, capacity of a levee to protect communities from flood will degrade, and the pace at which structures require expensive maintenance will hasten.

- 5) *Instead of building a wall, focus on reducing flood risk through smart floodplain management and guiding development away from floodplain.* We suggest flood damage reductions be sought through investment in local-scale efforts and improved floodplain management.

## **LOCAL SCALE FLOOD DAMAGE REDUCTIONS ACTIONS**

**We strongly support efforts to implement local-scale flood damage reduction projects, and floodplain management strategies that reduce flood risk while still supporting floodplain functions. These components should be included in a Chehalis Strategy, and we offer some recommendations for advancing them.**

- 1) *Local-scale flood damage reduction measures are effective, but guidance for property-owners is needed to ensure adequate implementation.* We understand the need for greater flood protection for communities in the Chehalis Basin. Floods pose risk to human safety and well-being, and impose enormous economic costs on impacted communities. Investment in local-scale flood damage reduction projects such as elevating structures, flood-proofing, farm pads, alarm systems, and smart floodplain management have shown success in reducing damage to structures and improving safety. We encourage inclusion of financial support and technical resources for implementing local-scale flood damage reduction projects and incentivizing property-owners to pursue these lot-scale approaches.
- 2) *Local strategies are needed that avoid flood damage, not just mitigate it.* The City of Centralia has invested in acquisition and relocation of high-risk floodplain structures, removing flood risk outright in those areas. In addition to relocating repetitively damaged and high-risk structures, preventing further development within floodplains will be critical to meeting flood-damage reduction objectives in Chehalis communities. Land management practices that minimize development in flood hazard zones and loss of floodplain areas can avoid future flood damage costs, while preserving open space and natural floodplain functions that further reduce flooding potential. Zoning ordinances that can achieve these outcomes may include; floodplain fill restrictions and low-density lots.
- 3) *Plan for future flood risks and support natural floodplain functions.* Where connected to waterways and allowed to flood, floodplains provide space to convey and store floodwaters, enhance groundwater flows, and reduce the speed and stage of floods downstream. Floodplains also support unique spawning and rearing habitat for fish and connect critical wildlife habitat areas. With effective planning, natural floodplain functions can protect well-sited structures from damage. We strongly support local-scale efforts that utilize floodplain functions as a means to reduce and avoid flood damage. Communities may use a number of floodplain management strategies to achieve this. Floodplains should be maintained as open-space where possible through use of conservation easements, public greenway corridors, and subdivision set-asides. Where historically filled, floodplains functions can be returned through use of buyout programs that target high risk or repetitively flood- damaged structures for relocation, and subsequent conversion of floodplains to open space.

- 4) *Existing programs within the National Flood Insurance Program can help guide improved floodplain management practices.* We suggest that Chehalis communities receive guidance on how to participate in the Community Rating System (CRS) offered through the National Flood Insurance Program (NFIP). The CRS works to reward communities that implement floodplain management standards that go beyond minimum standards required by the NFIP. Through the CRS, communities can earn discounts on insurance premium costs for properties enrolled in the NFIP. As more creditable activities are implemented, such as preserving floodplain open space, communities earn greater discounts, up to 40%, on the cost flood insurance. Communities in Pierce and King Counties have set national examples as highly rated CRS communities, and could help guide similar successes in the Chehalis Basin.

Communities should keep in mind that the cost of flood insurance for some properties in NFIP regulated flood hazard zones will increase nationally in the coming years, some up to 25% annually until they reflect actual risk-based rates. Cost increases are a result of NFIP reform enacted by the U.S. Congress in 2015, and are intended to phase-out subsidizing of risky development with taxpayer money. As such, many high-risk insurance policies will be restructured to reflect risk-based rates, and increase in cost in the coming years. These changes will create disincentive for further development in the flood hazard areas, and strengthen justification for community buyouts and open-space floodplain management practices.

- 5) *Develop better-informed river corridor management using models from other states.* Communities in the Chehalis Basin have an opportunity to develop better informed methods of floodplain management and provide an example to the rest of Washington. There is a critical need for river management schemes that apply fluvial and floodplain processes, such as channel migration and erosion dynamics, to land planning and development standards. A lack of consideration for these processes is largely to blame for the current trend of worsening flood risk, sky-rocketing flood damage costs, and degrading river functions across the United States. Some states, such as Vermont, have realized this and begun to develop new ways of thinking to manage community flood and erosion hazards. An example of this effort is the concept of River Corridor Zoning developed by Vermont's Agency of Natural Resources. A river corridor zone is developed based on a river channel's meander belt width, fluvial processes, and habitat features (Kline and Cahoon 2010). This offers a river management unit more fully informed by fluvial processes and not just the NFIP regulated floodplain area, resulting in safer development and restored dynamic equilibrium to river channels. Application of this thinking to develop Washington specific practices is desperately needed, and this is a prime opportunity to do so.

## **RESTORATIVE FLOOD PROTECTION**

**We strongly support alternatives that enhance resiliency of the Chehalis Basin to the impacts of climate change and help communities and ecosystems adapt to expected impacts of those changes. The restorative flood protection measures proposed in Alternative 4 can be a major benefit to this end; alternatives dependent on structural flood control are not.**

- 1) *The Restorative Flood Approach is an environmentally preferable alternative that was added very late in the PEIS development process.* The technical and economic details of Alternative 4 need to be further developed before a decision as to feasibility is possible. Further, the cost-benefit analysis lacks detail and seems to undervalue ecosystem service benefits of the restorative approach. We look forward to seeing further analysis.

- 2) *Flooding will continue, and likely intensify, in the Chehalis Basin.* The best available climate science indicates that flood hazards are expected to grow significantly in the Chehalis River Basin. Intensifying precipitation patterns will increase the magnitude of flood events throughout the Chehalis Basin. Models suggest that the 100-year flood may be up to 66% larger on the mainstem Chehalis River and potentially even greater in headwater streams. All of this indicates that floods will continue to occur in the Chehalis Basin, and adapting to these trends vs reacting to them with manmade, engineered structures should be a priority. Quantifiable actions that address climate change and promote climate resiliency are much needed in the PEIS, and these actions and their socio-economic, biological, and ecological impacts need to be clearly defined and supported with the best available science.
- 3) *Structured means to control floods are not climate resilient, and offer short-term relief to the intensifying symptoms of climate change.* Dams and levees resist the impacts of climate change and attempt to mitigate future flood damages. We see these alternatives as poor means to provide long-term flood risk reduction to people and structures, with disastrous implications for Chehalis Basin ecosystems, cultural values, and fish and wildlife. Additionally, these actions put enormous financial burdens on local communities and tax-payers. Instead, we encourage consideration of alternatives like the Restorative Flood Protection alternative that leverage natural processes and floodplain functions to advance objectives for flood reduction, habitat enhancement, and climate resiliency in the Basin.
- 4) *Nonstructural and restorative approaches can produce permanent reductions in flood risk and prepare the Basin for future climate conditions.* Non-structural approaches that improve floodplain management, relocate high-risk structures, and restore river-floodplain natural capacity to store, slow, and withstand floods may reduce flood stage and avoid damages altogether. These measures acknowledge and anticipate future climate conditions in the Basin, and offer an informed approach to meeting multiple needs for flood damage reduction and ecosystem restoration.
- 5) *Combined nonstructural and restorative flood protection alternatives can meet Chehalis Basin flood damage reduction and habitat enhancement needs, and bestow climate resiliency to the region.* The restorative flood protection treatments considered in Alternative 4 are truly multi-benefit projects. Use of large wood debris to reconnect floodplains and increase channel complexity is a proven successful method for increasing floodwater storage capacity in floodplain-river systems. Applied in the mainstem Chehalis and its tributaries, RFP treatments will return natural functions necessary to adapt to impacts of climate change, and set the Basin on a trajectory towards safer communities and restored ecosystems.
- 6) There is uncertainty as to who will host floodplain property acquisitions. Local entities need to be the ones developing the land acquisition strategy, and this strategy needs to be a transparent locally led process. Cost estimates for acquiring these properties seems surficial, and could use a more informed assessment to better understand the cost-benefits of Alternative 4.

## **AQUATIC SPECIES HABITAT ACTIONS**

**ASH restoration actions should be included as part of the Chehalis Strategy regardless of the other alternatives selected. These plans should move forward as soon as feasible, and on a rolling basis as lands and resources become available.**

- 1) *RFP and Aquatic Species Habitat actions offer an excellent return on investment for salmon and steelhead recovery.* It is much more cost-effective to protect and restore habitat before it is degraded than it is to recover endangered or threatened populations. Chehalis salmon and steelhead populations are not yet ESA-listed and still productive enough to utilize restored habitat, proliferate, and support self-sustaining populations. Therefore, investments in habitat restoration, while addressing flood damage reduction goals through the RFP alternative, will go a long way towards securing strongholds for wild salmon and steelhead and ensuring the persistence of fishable populations well into the future.
- 2) *ASH action projects should be prioritized in the onset and then reevaluated at regular intervals as landowner willingness develops and changes.* As noted in section 2.3.3.3, ASH actions will likely be implemented in only a percentage of opportunity areas due to landowner willingness. Landowner willingness is difficult to predict when planning restoration efforts on such a large scale. Prioritizing ASH actions will minimize newly restored reaches from being segregated, and aim to increase connected, functioning quality habitats that will have the greatest benefits to the aquatic ecosystem.
- 3) *The economic analysis of the ASH actions is very simplistic and needs more analysis.* As noted in section 4.8, the long term impacts of ASH actions have significant benefits to the aquatic ecosystem, water quality and water quantity. Some of these benefits include: improvements to water quality, improved riparian conditions, restored stream habitat and geomorphic processes, removal of fish barriers, and significant increases in salmonid abundance. The perceived benefits outlined at this point are surely enough to warrant more funding to study and further identify what it will take to attain these very desirable and much needed environmental benefits.
- 4) *ASH actions must be focused on lands under public ownership or conservation easement to guarantee the permanence of restoration efforts.* The RFP action suggests land buyouts whereas the ASH actions would largely be under 10 year leases with the USDA's Conservation Reserve Program (CRP). This is a cause for concern since significant investment would be put toward aquatic species restoration projects and a relatively short-term 10 year lease would not necessarily protect the investment over the long term. ASH actions should be as permanent as the FRFA and FRO dams being proposed in Alternative 1.

In conclusion, we feel that there is still a large degree of uncertainty to the cost-benefit analysis of alternatives put forward in the Chehalis Strategy PEIS. This makes a fair comparison of those alternatives difficult, and perhaps unrealistic.

We strongly support the concept behind the Aquatic Species Habitat Actions and support further development of these actions. We oppose the FRO dam based on the limited information presented in the PEIS. We strongly oppose construction of the FRFA facility due to it having the most significant adverse impacts of all of the alternatives. Both dam alternatives would significantly impair geomorphic and ecosystem processes, and salmon populations in the Chehalis Basin. We support the concepts developed in the Restorative Flood Approach alternative, and encourage further technical and feasibility analysis of this approach in the Chehalis Basin. Local-scale Flood Damage Reduction Actions need to be more completely developed and analyzed. The relationship between forest practices in the uplands and the hydrology of the Chehalis River system needs to be characterized and understood as part of this process.

We hope that these technical comments can help guide consideration of Chehalis Strategy alternatives moving forward, and we look forward to considering the outcomes of that effort.

Thank you for your attention to these comments.

Sincerely,

Wendy McDermott  
Director, Rivers of Puget Sound and Columbia Basin  
American Rivers

Lisa Pelly  
Director, Washington Water Project  
Trout Unlimited

## References

Kline, Michael and Barry Cahoon, 2010. Protecting River Corridors in Vermont. Journal of the American Water Resources Association (JAWRA) 1-10. DOI: 10.1111/j.1752-1688.2010.00417.x

**From:** [Wendy McDermott](#)  
**To:** [info@chehalisbasinstrategy.com](mailto:info@chehalisbasinstrategy.com)  
**Cc:** [Bailey, Chrissy \(ECY\)](#)  
**Subject:** Comments on Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement  
**Date:** Monday, November 14, 2016 5:53:25 PM  
**Attachments:** [image001.png](#)  
[Chehalis PEIS Comments AR CCH TU WW WSC 11-14-16.pdf](#)

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Dear Mr. White,

Please find attached comments on the Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement. This is a joint comment letter submitted by American Rivers, Citizens for a Clean Harbor, Trout Unlimited, Washington Wild, and the Wild Steelhead Coalition.

Thank you,

Wendy

Wendy McDermott  
Director, Rivers of Puget Sound and Columbia Basin



**American Rivers**

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206-213-0330 ext. 1

[Facebook.com/AmericanRivers](https://www.facebook.com/AmericanRivers) | [Twitter.com/AmericanRivers](https://twitter.com/AmericanRivers)

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[www.AmericanRivers.org/Donate](http://www.AmericanRivers.org/Donate)

**American Rivers • Citizens for a Clean Harbor • Trout Unlimited  
Washington Wild • Wild Steelhead Coalition**

November 14, 2016

Gordon White  
Program Manager, Shorelines and Environmental Assistance  
Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

RE: Comments on Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement

Dear Mr. White,

Please accept these joint comments for the record on the Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement (PEIS) on behalf of the organizations listed below. Some of the organizations are also submitting additional detailed, technical comments. The comments below are, in keeping with the programmatic nature of the PEIS, an overview of our response to the PEIS.

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- Wild Steelhead Coalition - The Wild Steelhead Coalition is dedicated to restoring healthy returns of wild steelhead to the waters of the West Coast.

## **1. General Comments on the Programmatic EIS**

Recognizing that the PEIS is in fact intended to be programmatic, the level of detail and specificity of various actions within the PEIS is quite varied. Further, within a specific action, some attributes are well developed, while other, equally important ones are not. This variation in analysis creates a situation in which adequately understanding the actions, their function and their environmental attributes is difficult, and understanding the interaction between the elements nearly impossible.

For example; detailed engineering and design has been done for the proposed dams, but little has been done to explore how those dams might affect sediment transport that is critical to the Aquatic Species Habitat Actions. Similarly, the dams are intended to affect downstream flood risk, but those effects are not integrated into the Local-scale Flood Damage Reduction Actions (LFDRA).

Fundamentally, the PEIS is flawed because of this. As discussed below, additional work is needed to make some of the Actions and interplay among Actions well enough understood to make charting a programmatic direction useful. Until that work is done, the PEIS will not have served its purpose in guiding decision makers.

A puzzling omission in the PEIS is that no entities are named which will be technically or financially responsible for performing many of the actions. There is no description of the institutional arrangements needed to construct, operate and maintain the large scale flood damage reduction actions. The future performance of the proposed Actions cannot be evaluated without some guidance as to the capabilities of those responsible for execution. What will the cost sharing arrangements be among the local, state and federal governments? Will direct beneficiaries of actions, such as people whose water rights are more secure or whose land becomes more valuable, be responsible for any of the cost?

Large complex projects such as this cannot be accomplished all at once as they are dependent on funding, scheduling of needed additional studies, and public review under NEPA and/or SEPA for each individual project. Therefore, the PEIS should lay out a proposed staging and sequencing of the actions and elements within actions.

## **2. No Action is not an acceptable alternative for the aquatic species, people of the Chehalis Basin, or the State of Washington**

No Action is not an acceptable alternative for the fish and wildlife of the Chehalis basin, which are declining under current conditions and will decline faster as the climate changes. No Action is also not acceptable for the people of the Chehalis basin or for the nation, given how important Interstate-5 is to the economy of the State of Washington.

However, given how long the flood reduction actions will take to implement, especially either of the proposed dams which will be mired in controversy and litigation for years, early implementation of the Aquatic Species Habitat Actions and Local-scale Flood Damage Reduction Actions is needed now and should continue regardless of the status of the flood projects.

### **3. Aquatic Species Habitat Actions**

We strongly support the concept of the Aquatic Species Habitat Actions (ASHA). This type of comprehensive approach to fishery and aquatic species restoration is needed throughout the state; however, the details remain to be described in the Chehalis Aquatic Species Restoration Plan still being drafted by Washington Department of Fish and Wildlife.

Of significant concern is the actual delivery and permanence of the results outlined in the PEIS. Much of the fishery restoration promised is an anticipated outcome from improved conditions arising from changed forestry practice - whether that increase in fisheries will actually result from those improved practices is uncertain. Any fishery restoration benefits that do arise will essentially be mitigation for prior poor forest practice. The ASHA depends on voluntary participation by riparian landowners willing to have restoration actions taken on their land. While some of that land will need to be purchased from willing landowners and secure permanent habitat restoration, the ASHA also relies extensively on leased land. This is a cause for concern since significant investment would be put toward aquatic species restoration projects and a relatively short-term 10 year lease would not protect the investment over the long term.

### **4. The Flood Retention and Flow-Augmentation and Flood Retention Only Dam Alternatives**

The technical and engineering attributes of the Flood Retention and Flow-Augmentation (FRFA) and Flood Retention Only (FRO) dam proposals appear to be very thoroughly developed for a Programmatic EIS compared to the other alternatives; however, the ecological impact and economics are much less developed and need to be quantified. Among the concerns common to both dam alternatives are: 1) the costs of the dams appear to be understated – typically building dams run well over initial budgets; 2) sediment transport analysis is weak and needs additional study; 3) effects on water quality beyond temperature and dissolved oxygen needs further analysis; 4) impacts on wildlife beyond salmon needs much more consideration and investigation; and 5) the impacts of further disconnecting natural geomorphic processes and the ecosystem services they provide (including water filtration, nutrient cycling, and flood reduction) needs to be considered in the benefit/cost analysis. In addition, building a dam would almost certainly promote development of the floodplains downstream – just as it has on the Green and Puyallup Rivers. The dams would also eliminate recreational river boating opportunities in the impounded areas. Discussion of the growth inducing impacts of these dam proposals is absent in the PEIS.

The FRFA proposal should be rejected for many reasons. Conversion of the Chehalis River to a permanent reservoir impoundment will remove hundreds of acres of forest and wetland, impair water quality, reduce fish-passage, reduce aquatic habitat quality, reduce salmonid survival across the basin, impair migration corridors for terrestrial species, inhibit sediment and debris transport, and induce negative geomorphic changes up and downstream. Of paramount concern, is the ineffective passage of lamprey, an ecologically important anadromous species that holds cultural and spiritual importance to Native Americans. The FRFA would also completely block large woody debris recruitment and nutrient-rich sediment, both of which are needed for healthy riverine processes downstream and for successful implementation of the ASHA. In term of impacts to water resources and water usage, the PEIS should include a thorough analysis of the water rights in the basin and the effect of the FRFA reservoir operation on those rights. Water in the Chehalis basin is over-appropriated; serious consideration is needed in order to protect river flows ostensibly dedicated to fish from appropriation through wells and surface diversion.

A successful example of an FRO-type dam of this scale does not exist – it is an unproven technology. The risks of dam failure should be clearly laid out in the PEIS. Dam safety must be paramount. The FRO has many of the same flaws as the FRFA – but with a lower degree of certainty of impact. Will the structure allow for effective passage of all life stages of anadromous and resident fish? Will sediment be deposited at the upstream end of the pool and not be mobilized, leading to accumulation of a large sediment wedge above the dam? How will water quality be affected, particularly temperature as a result of several miles of cleared reservoir footprint?

Both of these dams would require significant operations and maintenance funding.

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Unlike the dam elements, the Restorative Flood Alternative (RFA) is in very early stage of development. It has clear advantages in that it provides reduction in flood stages arising on the Newaukum and South Fork of the Chehalis River, which are not regulated by the dam proposals. It is a truly integrated approach, combining flood damage mitigation with aquatic species restoration in one action. This is the direction of the most innovative approaches to flood management now being developed. However, both its engineering and costs are in very early stages of development. Additional engineering and development is needed to define where RFA actions can be most beneficial and cost effective.

Without this additional development work, the cost estimates presented are very unreliable – until we know what can actually be accomplished the cost is a wild guess. Further, the cost of a large scale land acquisition program should be estimated by professionals in that field, not engineers and scientists expert in river restoration.

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In conclusion, we strongly support the concept behind the Aquatic Species Habitat Actions, but note that the details have not yet been released. We oppose construction of the dam alternatives based on the information presented in the PEIS. The RFA is promising, but needs additional technical and feasibility analysis. Local-scale Flood Damage Reduction Actions need to be much more completely developed as a real alternative and not simply a list of possible elements, and then analyzed. The

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Lisa Pelly  
Director, Washington Water Project  
Trout Unlimited

Tom Uniack  
Executive Director  
Washington Wild

Chase Gunnell  
Board Member  
Wild Steelhead Coalition

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 9:43 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

### Comment Form

**First Name:** Jon

**Last Name:** Albright

**Organization:** American whitewater

**Address:** 290 TLR  
98862  
United States of America

**Phone:**

**Email:**

**Comments:** Please don't be thinking we need any new dams on free flowing rivers. We have higher value uses for these recreational rich rivers.

**File Upload  
(1):**

**File Upload  
(2):**

**File Upload  
(3):**

This email was built and sent using [Visual Form Builder](#).

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**From:** Megan Hooker <megan@americanwhitewater.org>  
**Sent:** Monday, November 14, 2016 7:51 PM  
**To:** info@chehalisbasinstrategy.com  
**Cc:** Thomas O'Keefe  
**Subject:** EIS Comment - Chehalis Basin Strategy  
**Attachments:** 20161114 Chehalis Comments.pdf

Hello,

Please find attached comments from American Whitewater on the Draft Programmatic Environmental Impact Statement for the Chehalis Basin Strategy.

Megan

--

Megan Hooker

American Whitewater  
Associate Stewardship Director

541-728-0849 (office)  
503-358-0140 (cell)  
[megan@americanwhitewater.org](mailto:megan@americanwhitewater.org)

[American Whitewater](#)'s mission is to conserve and restore America's whitewater resources and enhance opportunities to enjoy them safely. [Become an American Whitewater member](#) today!



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Chrissy Bailey, EIS Project Manager  
Chehalis Basin Strategy EIS, c/o Anchor QEA  
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Seattle, Washington 98101

Sent via electronic mail to: [info@chehalisbasinstrategy.com](mailto:info@chehalisbasinstrategy.com)

RE: Comments on Draft Programmatic Environmental Impact Statement for the  
Chehalis Basin Strategy

Dear Mr. White and Ms. Bailey:

American Whitewater provides these comments on the Draft Programmatic Environmental Impact Statement for the Chehalis Basin Strategy (EIS). American Whitewater is strongly opposed to construction of a new dam on the Chehalis River. We consider both the Flood Retention Only (FRO) and Flood Retention Flow Augmentation (FRFA) dam alternatives to be unacceptable for the future of the free-flowing Chehalis River. We support further investigation and development of the Restorative Flood Protection alternative that would provide tangible habitat benefits and enhance natural flood storage capacity through restoring riparian function and reconnecting the river to its floodplain. In addition, we support investment in structural flood protection projects that do not include the flood retention facility options. These include Airport Levee improvements, I-5 projects, and Aberdeen/Hoquiam North Shore Levee. Finally, we fully support Local-Scale Flood Reduction Actions and Aquatic Species Habitat Actions. Collectively, the actions we support will best meet the Purpose and Need to substantially reduce flood damage and restore aquatic species habitat in a cost-effective and ecologically sustainable manner.

We encourage the Governor's Chehalis Basin Workgroup to terminate planning for a new dam on the Chehalis River. Instead we encourage the State to invest resources in the next biennium in fully developing the Restorative Flood Protection alternative, begin project-level environmental analysis and investment in structural flood protection that does not include construction of a dam, and expand the scope and investment in Local-Scale Flood Reduction and Aquatic Species Habitat Actions.

## **I. Interest of American Whitewater**

American Whitewater is a national non-profit 501(c)(3) river conservation organization founded in 1954. American Whitewater's mission is to conserve and restore America's whitewater resources and to enhance opportunities to enjoy them safely. We have over 5,800 individual members and over 100 local-based affiliate clubs, representing thousands of whitewater paddlers across the nation. In Washington State, we represent an enthusiastic paddling population of approximately 3,000 paddlers through our individual members and local affiliate clubs. As an organization that represents recreational river runners on issues related to both conservation and public access to waterways, American Whitewater has an interest in the Chehalis River. A significant percentage of our members reside in Washington State—a short driving distance from this river for recreation.

## **II. Opposition to New Dams on the Free-Flowing Chehalis River**

American Whitewater is strongly opposed to any new dam on the Chehalis River. Both the FRO and FRFA alternatives run counter to the stated Purpose and Need for a comprehensive response that integrates reducing flood damage and restoring aquatic species habitat within the Chehalis Basin. According to the EIS, flood damage would be minimally reduced under these options. It states, "along the Chehalis River in the Chehalis-Centralia area, the flood level could be reduced up to 1.8 feet during a 100-year flood."<sup>1</sup> With respect to fishery resources, the EIS plainly states that "both the FRO and FRFA facility types would create a significant adverse impact on fish survival"<sup>2</sup> resulting from "loss of habitat function and reduced survival or access to spawning grounds."<sup>3</sup>

The Chehalis River is currently characterized by extensive floodplains with diverse in-channel and off-channel habitat. This habitat complexity supports amphibian diversity and relatively healthy and robust salmon runs. A notable characteristic of the river is the absence of Endangered Species Act (ESA)-listed salmonids. Despite this, habitat degradation has occurred and a need exists to reverse this trend. A new dam would not address the degradation of salmon habitat in the basin; it would only compound the challenges fishery resources face. Negative impacts would include but not be limited to inundation of spawning habitat, fragmentation of habitat with reduced floodplain connectivity and complexity, precluded opportunities to restore health to the riparian forest, new fish passage challenges, and severe disruption of sediment transport essential to maintenance of fish habitat.

The EIS makes the statement that "[i]t is important to evaluate the impacts of the proposed dams in context with historical impacts of existing dams throughout the Pacific

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<sup>1</sup> Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement. 2016. Department of Ecology State of Washington. p. 244. ("EIS") Available at: <http://chehalisbasinstrategy.com/eis-library/>

<sup>2</sup> EIS at p. 282.

<sup>3</sup> EIS at p. 283.

Northwest; however, because of the unique design of the FRO and FRFA dams and flood control operations being proposed, it is equally important to evaluate the impacts of each dam type on fish independent from the known effects of other dams."<sup>4</sup> This statement implies that the "unique design" of these dams would result in impacts to fish independent of known effects of dams on fishery resources. This conclusion is not supported by information in the EIS or the peer-reviewed literature on dams.<sup>5</sup> In fact, the EIS states, "anticipated adverse impacts of the Flood Retention Facility on fish would be significant for fish populations in the Chehalis Basin"<sup>6</sup> due to loss of habitat function in the inundation zone, new passage impediments, reduction in fish survival, and changes to geomorphology that impact fish-habitat forming processes. The EIS clearly states that many species "would be adversely affected by inundation, whether temporary or permanent."<sup>7</sup>

In addition to the direct impact on aquatic habitat, the adjoining riparian zone would be adversely impacted. Riparian zones are important for overall biodiversity and ecological function of rivers.<sup>8</sup> Riparian vegetation would be removed throughout the inundation zone and the negative impact on aquatic species habitat is clearly noted in the EIS: "loss of habitat function would occur due to removal of trees with either the FRO or FRFA facility."<sup>9</sup> Negative impacts on habitat would extend downstream due to reductions in habitat-forming processes that are driven by high flows. In fact, the EIS explicitly states that flood-control "would translate to reductions in habitat-forming processes, especially those that are driven by major floods."<sup>10</sup>

In addition to the aquatic habitat impacts, the location of the dam limits its effectiveness for reducing flood damage. While the dam would provide flood reduction services for rain events in the Upper Chehalis watershed, it would not provide any flood control benefit for localized rain events in the South Fork Chehalis, Newaukum, or Skookumchuck watersheds.

The long-term sustainability of this alternative is also highly questionable given the significant operations and maintenance costs associated with this facility that are not adequately presented in the EIS. In fact, no plan for agency oversight and management is presented. The EIS fails to address the fundamental question of who would own and operate the facility.

### **III. Restorative Floodplain Option**

The Restorative Flood Option option would best meet the Purpose and Need of integrating flood damage reduction and aquatic species habitat restoration within the

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<sup>4</sup> *Id.* at p. 282.

<sup>5</sup> Dynesius, M. and Nilsson, C., 1994. Fragmentation and Flow Regulation of River Systems in. *Science*, 266, p.4.

<sup>6</sup> EIS at p. 281.

<sup>7</sup> *Id.* at p. 283.

<sup>8</sup> Naiman, R. J., Decamps, H. and Pollock, M. (1993), The Role of Riparian Corridors in Maintaining Regional Biodiversity. *Ecological Applications*, 3: 209–212.

<sup>9</sup> EIS at p. 283.

<sup>10</sup> *Id.* at p. 302.

Chehalis Basin. It would reconnect the river to its floodplain, resulting in greater natural floodplain storage. It also directly recognizes and addresses the primary aquatic habitat issue outlined by the EIS: the "most common freshwater habitat impairments include a lack of channel complexity."<sup>11</sup> This lack of channel complexity and natural floodplain storage is attributable to the fact that "much of the Chehalis River channel network in the assessment area is incised, meaning that the channel is larger and deeper than under undisturbed conditions."<sup>12</sup> By addressing this condition and reconnecting the currently incised channel with the floodplain, this alternative would increase wetland habitat, improve the health and ecological function of riparian vegetation communities, address bank erosion, and improve floodplain connectivity. Collectively, these things will benefit aquatic species habitat while enhancing natural floodplain storage.

In contrast to the dam alternatives, the Restorative Floodplain Option was modeled to have a significant positive impact on all salmonid species with "population increases, ranging from about 26% for fall-run Chinook salmon to 473% for spring-run Chinook salmon."<sup>13</sup> Of the alternatives considered in the EIS, the Restorative Floodplain Option most directly meets the Purpose and Need to restore aquatic habitat and is the most ecologically and financially sustainable. As noted in the EIS, "this action element would be self-sustaining and would not require routine maintenance or upkeep"<sup>14</sup> thereby avoiding the operations and maintenance costs associated with either of the dam alternatives.

We know that channel incision and clearing forests within the floodplain has reduced floodplain connectivity and capacity for flood storage, as well as influence the timing and extent of floods. These are likely factors that impact the magnitude and timing of floods in the Chehalis Basin. The extent of these changes and corresponding impacts on flooding have not been sufficiently modeled, however we know that "reduction in flood elevations of 0.4 foot for the 100-year floodplain along the Chehalis River in the Chehalis-Centralia area, and 1.1 foot at the Newaukum River confluence"<sup>15</sup> are possible. In contrast to the two dam alternatives, the Restorative Floodplain Option offers a truly basin-wide approach to providing flood control benefits that include actions in the Upper Chehalis, South Fork Chehalis, and Newaukum River sub watersheds. Given that "more detailed, site-scale analysis would be required to determine the areal coverage over which Restorative Flood Protection actions would be necessary to achieve the most substantial downstream flood damage reduction,"<sup>16</sup> we support the additional modeling required to determine how to most effectively implement this option. Additionally, we recommend further investigation of the effects of forest practices on peak flows in the Chehalis Basin.

An additional benefit of this option is that it is compatible and synergistic with the Aquatic Species Habitat Actions.<sup>17</sup> Specifically, the Restorative Floodplain Option will

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<sup>11</sup> *Id.* at p. 148.

<sup>12</sup> *Id.* at p. 38.

<sup>13</sup> *Id.* at p. 344.

<sup>14</sup> *Id.* at p. 245.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at p. 39.

<sup>17</sup> *Id.* at p. 57.

restore riparian and off-channel habitat, address bank erosion, reconnect the currently incised river channel with the floodplain, and restore wetland habitat.

#### **IV. Recreational Impacts of a Dam and Support for an Alternative Vision**

The EIS states that the “Flood Retention Facility [the dam] would permanently foreclose use of this reach of the Chehalis River for whitewater rafters for health and safety reasons,”<sup>18</sup> and also notes that “this reach of the river is generally not used for kayaking because of access limitations.”<sup>19</sup> The implication is that the project would not impact whitewater recreation due to current low use numbers that result from access limitations. Our vision for the future is a river that is open and accessible and not lost permanently under the slackwater of a reservoir. We encourage the state to work with private forest land owners to enhance recreational opportunities on rivers that flow through commercial timberlands. Outdoor recreation is important to our quality of life in the Pacific Northwest. We should be seeking ways to improve opportunities to enjoy outdoor recreation and access to our waterways and not further limit them.

American Whitewater is cited in the EIS as providing the information that the “reach is generally not used for kayaking”<sup>20</sup> and “the area is not used heavily by rafters.”<sup>21</sup> This is an inaccurate reference to an email exchange between Jessica Conquest and Thomas O’Keefe in February 2016. In response to a query about use of the reach for recreation, American Whitewater suggested a site visit focused on recreation, but was informed that the budget for developing the EIS did not support this. This was disappointing given the fact that we know fieldwork was done for other elements of the document. The regional paddling community has enjoyed this reach for many years and it is known as an extremely high quality resource. In recent years, access has been challenging due to Weyerhaeuser’s current management practices. We request that the relevant section of the EIS be modified to accurately represent the fact that the reach has been popular for both whitewater kayaking and rafting in the past but has been less accessible in recent years due to current access policies of the private forest land manager that favor hunting over other dispersed recreation uses. The statement that the “reach is generally not used for kayaking” is not accurate and should not be attributed to our organization.

The assessment of whitewater recreation in the EIS is inadequate. Should this project proceed and require that a project-level environmental analysis be developed, it will be necessary to investigate the impacts to whitewater recreation, and will require a field component. Methodology is available from the National Park Service Rivers and Trails Conservation Assistance program.<sup>22</sup>

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<sup>18</sup> *Id.* at p. 323.

<sup>19</sup> *Id.* at p. 209.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at p. 323.

<sup>22</sup> Whittaker, D. B. Shelby, and J. Gangemi, 2005. Flows and Recreation: A Guide to Studies for River Professionals. Hydropower Reform Coalition and National Park Service – Hydropower Recreation Assistance. Available at: <https://www.nps.gov/ncrc/programs/hydro/flowrec.htm>

Should the dam move forward, we find the approach to mitigating the impacts to river based recreation outlined in the EIS unacceptable. It states, "[n]o mitigation is available for the long-term impacts from changes to in-water recreation and reduction of recreation opportunities within the reservoir area."<sup>23</sup> Permanent loss of a river for whitewater recreation in the Chehalis Basin is a significant impact, and is one of the few impacts highlighted in the entire EIS document for which no mitigation is proposed.

The Restorative Floodplain Option will have impacts on river-based recreation due to logjams that create hazards to navigation.<sup>24</sup> Wood hazards are a common feature on naturally-functioning rivers in the region. We support the compensatory mitigation practices outlined in the EIS, which includes identifying hazards and public safety communications. This approach has been successfully implemented on dozens of other river systems throughout the region where restoration work has been done. In addition, American Whitewater has published technical guidance on how projects can be designed in a manner that meets recreational objectives as well as primary engineering or habitat objectives.<sup>25</sup> In short, there will be impacts, but they can be mitigated. This is in contrast to the dam alternatives where the best whitewater recreational opportunities on the Chehalis River will be completely eliminated.

Our organization is inaccurately referenced throughout the document as "American Whitewater Association."<sup>26</sup> The full legal name of our organization is American Whitewater.

## **V. Other Structural Flood Protection Projects and Local-Scale Flood Reduction Actions**

American Whitewater supports further development of structural flood protection projects that do not include the flood retention facility. These include the Airport Levee improvements, I-5 projects, and Aberdeen/Hoquiam North Shore Levee. These projects meet the Purpose and Need of reducing flood damage while resulting in relatively minimal negative impacts on aquatic species habitat. Additional analysis should be conducted as part of a project level environmental analysis, but these projects are sufficiently consistent with the Purpose and Need and we support them moving forward.

American Whitewater also strongly supports immediate implementation and additional investment in Local-scale Flood Damage Reduction Actions. As noted in the EIS, these actions "have fewer significant adverse impacts on many elements of the natural and built environment than the Large-scale Flood Damage Reduction Actions."<sup>27</sup> They are consistent with the Purpose and Need and unlike the large-scale actions, implementation can commence on a much faster and efficient timescale. We urge the Governor's Work Group to prioritize funding these actions.

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<sup>23</sup> EIS at p. 323.

<sup>24</sup> *Id.* at p. 358.

<sup>25</sup> Colburn, K. 2012. Integrating Recreational Boating Considerations Into Stream Channel Modification & Design Projects. American Whitewater. Available at: <http://www.americanwhitewater.org/content/Document/view/documentid/1006>

<sup>26</sup> *See e.g.* EIS at p. 204.

<sup>27</sup> *Id.* at p. 408.

## **VI. Aquatic Species Habitat Actions**

We strongly support implementation of the Aquatic Species Habitat Actions outlined in the EIS. These actions are consistent with the Purpose and Need and implementation can begin immediately with investment in early phase actions. In our view, these actions can be coordinated with the Restorative Floodplain Option. While further development of the Restorative Floodplain Option is necessary, Aquatic Species Habitat actions can begin immediately that will complement a basin-scale approach to restoring floodplain function. For this reason we believe it is appropriate for the Governor's Work Group to prioritize Aquatic Species Habitat Actions for implementation and funding. American Whitewater recommends that the Final EIS include additional detail about specific actions and projects that will be part of the Aquatic Species Habitat Action, including provisions to ensure that no future development will occur in the floodplain.

## **VII. Conclusion**

Thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement for the Chehalis Basin Strategy. We are strongly opposed to a new flood retention facility (a dam) in the Chehalis River basin as considered under Alternative 1. Both the FRO and FRFA dam alternatives are inconsistent with the Purpose and Need, would result in significant impacts to aquatic habitat and whitewater recreation that would not be mitigated, and would place native fish at greater risk. We support additional development and investment in Alternative 4, the Restorative Floodplain Option, to optimize natural flood storage. We also support the projects in Alternative 2 that include both large-scale and local-scale flood reduction actions that could be implemented and integrated with Alternative 4. We support the Aquatic Species Habitat Actions proposed across all alternatives. Developing these actions consistently with the actions and goals of the Restorative Floodplain Option will ensure that they are optimized to benefit aquatic species. We support immediate investment in early phase actions within Alternatives 2 and 4.

Sincerely,



Thomas O'Keefe, PhD  
Pacific Northwest Stewardship Director

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Comment Form

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November 10, 2016

Chehalis Basin Strategy EIS  
c/o Anchor QEA  
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**RE: Draft Programmatic Environmental Impact Statement for the Chehalis Basin Strategy**

To whom it may concern:

Thank you for the opportunity to comment on the *Draft Programmatic Environmental Impact for the Chehalis Basin Strategy*<sup>1</sup>. We have reviewed the DEIS and we wish to express our strong opposition to *Alternative 1: the 2014 Governor's workgroup recommendation*. There is widespread agreement that dams have deleterious effects on river systems and the ecosystem processes and species they support. At a time when dam removals are gaining traction nationwide and considerable resources are being spent in Washington State to remove dams (e.g., the Elwha) or mitigate for their ill effects (e.g., the Columbia River), the idea that we would invest in the construction of a new flood control facility is indefensible.

At this time, there is no single alternative that we support; rather, we see an urgent need for Ecology to assess how the portfolio of structural flood protections, local-scale flood damage reductions actions, aquatic species habitat actions, and restorative flood protection actions proposed under alternatives 2, 3, 4, would work additively and synergistically to achieve the flood control and ecological aims of a true basin-wide strategy. To do so, Ecology must go beyond an inventory of potential actions and develop a science-based plan for the sequencing and evaluation of structural and habitat actions. Only then can we evaluate the potential effectiveness of the proposed actions in achieving the long-term goals of the Strategy, which include a safer future for people, a healthier, more resilient Chehalis Basin for aquatic species and reduced social and economic costs associated with floods and degraded aquatic species habitat.

In the sections below we outline our top-level concerns related to the proposed construction of a flood retention facility and highlight key ecological principles that should be used to guide the design, implementation and evaluation of local-scale flood damage reductions actions, aquatic species habitat actions, and restorative flood protection actions.

**Opposition to Alternative 1: the 2014 Governor's workgroup recommendation.**

The negative environmental consequences of dams are widely recognized and are at odds with the previously stated goals of the Strategy and the proposed aquatic habitat species actions, which are "designed to protect, improve, and create sustainable ecosystem processes and functions that support the long-term productivity of native aquatic and semiaquatic species, and at much higher levels of abundance than current conditions support." From our reading of the DEIS, the construction of a flood control facility will:

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<sup>1</sup> Ecology (Washington State Department of Ecology). 2016. "Draft Programmatic Environmental Impact Statement: Chehalis Basin Strategy – Reducing Flood Damage and Restoring Aquatic Species Habitat". Available at: <http://www.chehalisbasinstrategy.com>. Accessed October 10, 2016.

- Significantly and unavoidably degrade aquatic habitat for fish and wildlife species both above and below the proposed dam;
- Impair ecological processes related to sediment flow and floodplain function;
- Contribute to greenhouse gas production through the creation of a permanent reservoir<sup>2</sup> (under the FRFA dam alternative).

**Habitat degradation - Fish.** The DEIS has identified ten, long-term significant adverse impacts associated with the FRFA Flood Retention Facility and considers effects on water quality and fish to be beneficial. According to the DEIS “Flow augmentation and releases of cool water from the FRFA reservoir are anticipated to provide downstream benefits to native fish species including Pacific lamprey, mountain whitefish, largescale sucker, speckled dace (discussed later in this section) and adult spring-run Chinook salmon that require cool-water refugia during peak summer water temperatures” However, the technical memorandum contained in Appendix K<sup>3</sup> states that “in general, there is uncertainty around the actual physical changes in the river resulting from the dam, as well as the biological response of spring-run Chinook salmon to flow and temperature modulation below the dam. The potential behavioral response of spring-run Chinook salmon to the availability of cool water released from a dam in the upper Chehalis River is uncertain.” We assume that the behavioral response of other native fish species are similarly uncertain, therefore we recommend a change in DEIS language related to flow augmentation to reflect this uncertainty.

**Habitat degradation – Birds.** A number of avian species have close or obligatory associations with freshwater and estuarine aquatic environments, including waterfowl, shorebirds, wading birds, and some raptors and songbirds (e.g., DEIS Appendix G). The proposed structural actions being considered under large-scale flood damage reductions actions and aquatic species habitat actions are likely to impact these species in both beneficial and adverse ways, e.g., through the creation of open water habitat and the degradation of downstream riparian and estuarine habitat.

The DEIS notes that long-term impacts to wildlife as a result of the flood retention facilities could include:

- Loss, conversion, and fragmentation of wetland and vegetation communities that function as wildlife habitat as a result of selective clearing and inundation in the dam and reservoir footprint.
- Changes to wildlife habitat-forming processes downstream of the dam due to the streamflow management and vegetation community modification.

Research on avian community response to riparian habitat alteration indicates that birds can be very sensitive to changes in the structural complexity of riparian habitats, which in turn are linked to sediment input<sup>4</sup>. Although little empirical research exists on the impacts of dams on avian species, predictive models incorporating information about vegetation change before and after dam construction reveal changes in bird communities from gravel bar-nesting species to forest-nesting birds<sup>5</sup>.

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<sup>2</sup> Deemer, B.R. et al. 2016. Greenhouse gas emissions from reservoir water surfaces: a new global synthesis. *Bioscience*. In press.

<sup>3</sup> Rohrbach, L. and J. Ferguson. 2016. Effects of temperature reductions and flow augmentation on spring-run Chinook salmon. Technical memorandum prepared by Anchor QEA, LLC, for Washington State Department of Ecology, Washington Department of Fish and Wildlife. September 27, 2016.

<sup>4</sup> Scott, M.L. et al. 2003. Relating geomorphic change and grazing to avian communities in riparian forests. *Conservation Biology* 17: 284-296.

<sup>5</sup> Yabuhara, Y. et al. 2015. Predicting long-term changes in riparian bird communities in floodplain landscapes. *River Research and Application* 31: 109-119.

The DEIS posits that because birds are highly mobile and more “adaptable” to changes in habitat, they can simply move to nearby “managed forestland” where similar habitats are abundant (emphasis added). Although these characteristics are true for some generalist species, riparian habitat is ecologically distinct from forest habitat in a number of ways, including the community of aquatic prey species available to birds, and the composition and structure of nesting and roosting habitat. Changes to flow regime that degrade these conditions will likely impact birds in ways that deserve evaluation, particularly for species of conservation concern that are highly associated with riparian or riverine habitat. In addition, we also strongly urge Ecology to consider potential impacts of the proposed flood control and aquatic habitat actions to fish and wildlife species downstream in Grays Harbor estuary, described in more detail below.

**Sediment flow and floodplain function.** One of the primary ways that dams degrade the ecological integrity of riverine systems is through changes in hydrological flow regime and associated sediment flow. Sediment plays a fundamental role in supporting aquatic food webs; sediment grain size influences the distribution of benthic fauna and vegetation, which in turn influences foraging opportunities for salmon and other fish and wildlife. Not surprisingly, fish and birds are known to cue in on different sediment sizes while foraging. For example, Dunlin favor substrates with higher mud content<sup>6</sup> and Chinook salmon favor sand flats<sup>7</sup>. Sediment input can also change the morphology and elevation of foraging substrates, which in turn influences foraging suitability for shorebirds that prefer to forage in and along tidal channels<sup>8</sup>.

Consideration of downstream impacts is a high priority; Grays Harbor estuary is a site of hemispheric importance for migratory shorebirds<sup>9</sup>, supports six distinct Important Bird Areas<sup>10</sup>, hosts hundreds of thousands of migratory birds on an annual basis and provides habitat for over 250 bird species<sup>11</sup>. The estuary provides essential fish habitat that supports commercial and tribal fisheries and a variety of recreational opportunities.

There is scientific consensus that changes to watershed processes, including forest practices, have downstream effects in coastal estuaries, yet potential impacts to Grays Harbor estuary are ignored in the DEIS. Conversely, the implementation of aquatic species habitat actions may restore natural processes related to sediment deposition and flow that have the potential to trigger restorative outcomes for species and systems throughout the basin, including the estuary. Changes to sediment inputs as a result of structural flood control actions should be examined cumulatively and should incorporate potential impacts in Grays Harbor Estuary. An enumeration of the ways that restoring currently impaired processes function might benefit fish and wildlife within the entire basin would also inform stakeholder evaluation of action alternatives.

**Greenhouse gas production.** A recent synthesis on reservoir emissions found that reservoirs associated with dams are considerably worse for the environment than previously thought<sup>2</sup>. The contribution of the permanent reservoir to greenhouse gas emissions should be evaluated under 4.2.7.2.1 *Effects of the Flood Retention Facility Contributing to Climate Change*.

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<sup>6</sup> Granadeiro, J.P. et al. 2004. Modelling the distribution of shorebirds in estuarine areas using generalized additive models. *Journal of Sea Research* 52: 227-240.

<sup>7</sup> Simenstad, C.A. et al. 1991. *Estuarine Habitat Assessment Protocol*. EPA 910/9-91-037. 201 pp.

<sup>8</sup> Miller, A.K. 2012. Site selection by migratory shorebirds in Oregon estuaries over broad and fine spatial scales. Master's Thesis, Portland State University, Portland, OR USA.

<sup>9</sup> <http://www.whsrn.org/site-profile/grays-harbor-estuary>, accessed on 11.01.16

<sup>10</sup> <http://www.audubon.org/important-bird-areas>, accessed on 11.01.16

<sup>11</sup> <http://ghas.org/checklist.php>, accessed on 11.01.16

## A science-based, basin-level approach

We agree with the 2012 consensus among policymakers and community leaders that a Basin-wide approach that “works with nature” is needed. Crafting such an approach is a complex undertaking that must balance the human dimensions of land use and flood risk with the best available science on watershed, riverine, and floodplain restoration. The various alternatives presented in the DEIS fail to lay out a clear a framework for how the design and implementation of flood control and aquatic habitat actions would result in a self-sustaining system with restored natural processes related to flood control and structural attributes related to aquatic species habitat.

Significant advances have been made in our theoretical and practical understand of river and watershed restoration in recent decades as we learn from the successes and failures of individual projects. The field has advanced from a narrow focus on single-species outcomes, habitat and in-stream structures to a more holistic view of restoring processes and disturbance regimes. This evolution has come at great cost; there is little evidence that the former approach has been successful<sup>12</sup>. The Strategy appears to embrace a more holistic view of the Chehalis Basin System, yet the proposed actions presented in the DEIS are not explicitly linked to a watershed level framework for restoration and notably fail to consider local forest practices and downstream effects in Grays Harbor Estuary. Beechie and others (2010) outline four principles for process-based restoration that are highly relevant to the Basin and we urge the Department of Ecology and others to more explicitly integrate these ecological principles moving forward<sup>13</sup>.

1. *Target root causes of habitat and ecosystem change.* The DEIS describes the Chehalis Basin as a degraded system. Have the root causes of degradation been investigated and are the proposed actions specifically directed at correcting human alteration to the processes driving degraded conditions?
2. *Tailor restoration actions to local potential.* The channel and riparian conditions at individual river reaches are a function of their physiographic and climatic setting. Are the proposed actions appropriately designed and scaled for these settings?
3. *Match the scale of restoration to the scale of the problem.* Are the root causes of degradation at the watershed scale (e.g., forest practices, impervious surfaces), reach scale (e.g., levees, channel modification) or both? Are the proposed actions aimed at the appropriate scale to restore the system? Have they been prioritized appropriately<sup>14</sup>?
4. *Be explicit about expected outcomes.* Have the proposed actions been designed within a framework that allows adaptive management and include a probabilistic range of potential outcomes (e.g., ranges of flow and sediment inputs, changes in species communities)<sup>15</sup>?

## Conclusion

Considerable scientific resources exist to guide the application of these principles to the Chehalis Basin Strategy. Although many elements of systems-level thinking are alluded to within the DEIS, further planning efforts will be improved by framing the proposed actions and alternatives within this type of framework so that the range of possible outcomes for species, systems, and economic impacts can be more readily

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<sup>12</sup> Palmer, M.A. 2008. Reforming watershed restoration: science in need of application and applications in need of science. *Estuaries and Coasts* 32: 1-17.

<sup>13</sup> Beechie, T.J. et al. 2010. Process-based principles for restoring river ecosystems. *Bioscience* 60: 209-222.

<sup>14</sup> Roni et al. 2002. A review of stream restoration techniques and a hierarchical strategy for prioritizing restoration. *Pacific Northwest Journal of Fisheries Management* 22: 1-20.

<sup>15</sup> Hughes, F.M.R. et al. 2005. Restoring Riparian Ecosystems: The Challenge of Accommodating Variability and Designing Restoration Trajectories. *Ecology and Society* 10: 12.

evaluated. Regardless of which alternative is ultimately selected, planning and implementation should incorporate long-term monitoring in an experimental framework. This will enhance the probability of success, however it is defined, and further advance our understanding of watershed restoration science.

In the meantime, we are unequivocally opposed to Alternative 1. **The significant degradation of aquatic habitat for fish and wildlife species under Alternative 1 is likely and poses an unacceptable risk to treaty-protected resources and vital migratory bird habitats.**

Audubon Washington is an organization dedicated to the protection of birds and their habitats. We have 25 active chapters here in Washington, representing over 21,000 members. We also have three science and nature centers located in Seattle, Sequim and Tacoma that serve over 35,000 people each year.

Thank you for considering our comments and concerns; please don't hesitate to contact us if you have any questions.

Sincerely,



Trina Bayard, PhD  
Director of Bird Conservation, Audubon Washington

Arnie Martin, President  
Grays Harbor Audubon Society

Sam Merrill, Conservation Chair  
Black Hills Audubon Society

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 2:15 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** CELP-comment-letter-Chehalis-River-EIS.pdf

Comment Form

**First Name:** Trish

**Last Name:** Rolfe

**Organization:** Center for Environmental Law & Policy

**Address:** 85 S Washington St  
Suite #301  
Seattle, Washington 98104  
United States of America

**Phone:** 206-829-8299

**Email:** trolfe@celp.org

**Comments:** Center for Environmental Law & Policy has prepared a detailed comment letter that is attached.

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/CELP-comment-letter-Chehalis-River-EIS.pdf>

**File Upload (2):**

**File Upload (3):**

This email was built and sent using [Visual Form Builder](#).

**From:** [Trish Rolfe](#)  
**To:** [Bailey, Chrissy \(ECY\)](#)  
**Subject:** Chehalis Basin Strategy  
**Date:** Monday, November 14, 2016 2:19:49 PM  
**Attachments:** [CELP comment letter Chehalis River EIS.pdf](#)

---

Ms. Bailey,

Center for Environmental Law & policy has submitted the attached comment letter on the Chehalis Basin Strategy draft Environmental Impact Statement via the website, but wanted to make sure you got it as well. Thank you for the opportunity to comment.

Sincerely,

**Trish Rolfe**  
**Executive Director**

[Center for Environmental Law & Policy \(CELP\)](#)  
85 S Washington St, Suite 301  
Seattle, WA 98104  
[trolfe@celp.org](mailto:trolfe@celp.org) | 206-829-8299



CLEAN, FLOWING WATERS FOR WASHINGTON

The Center for  
**Environmental Law & Policy**

November 14, 2016

Chehalis Basin Strategy EIS  
c/o Anchor QEA  
720 Olive Way, Suite 1900  
Seattle, Washington 98101

RE: Comments on Chehalis Basin Draft EIS

Dear Department of Ecology:

Please accept these comments on the Chehalis Basin Draft EIS, submitted by the Center for Environmental Law & Policy (CELP). The Chehalis Basin is the second largest river basin in Washington State, and CELP understands that the area has suffered from devastating flooding for decades, as well as a decline in habitat for native aquatic species. This is a complicated problem with no simple answers, but we believe that you cannot solve one problem by making the other one worse. This plan seeks to remedy both issues of damaging floods and degraded fish habitat in the Chehalis River Basin, and consists of several alternatives including a flood-retention dam near Pe Ell in the headwaters of the Chehalis River, as well as a variety of land use management and environmental projects. CELP believes that the alternatives suggested fall short, and that both the fish and flooding goals can be achieved with a combination of actions. All of the alternatives suffer from a considerable lack of detail, which needs to be remedied.

### **General Comments on the Programmatic EIS**

Recognizing that the PEIS is in fact intended to be programmatic, the level of detail and specificity within the PEIS is quite varied. Some attributes are well developed, while other, equally important ones are not. This variation in analysis creates a situation in which adequately understanding the actions, their function and their environmental attributes is difficult, and understanding the interaction between the elements is nearly impossible. This is a fundamental flaw in the PEIS. Additional work is needed to make some of the Actions and interplay among Actions developed enough to make charting a programmatic direction useful. Until that work is done, the PEIS will not have served its purpose in guiding decision makers.

Additionally, the description of Alternatives and the actions contained in each appears biased towards selection of Alternative 1. For example, both the aquatic species habitat and the restorative flood protection actions exclude the mainstem Chehalis River upstream of the proposed dam site. This only makes sense if one begins from the premise that a dam will be

built. If a no-dam alternative is truly being considered, then the potential contribution of these upper Chehalis reaches to the non-dam alternatives must be included.

### **No action Alternative**

Selecting the No Action Alternative is not an acceptable alternative for the fish and wildlife of the Chehalis basin, which are declining under current conditions and will decline faster as the climate changes. It is also not acceptable for the people of the Chehalis basin, given the flooding risk they face and the role that Interstate-5 plays in the economy of the State of Washington.

### **Alternative 1: 2014 Governor's Work Group Recommendation**

Of the several options proposed, Alternative 1 originated from the 2014 Governor's Work Group and involves building a dam to control flooding in the Chehalis River basin. Although this alternative includes some provisions for habitat restoration, it does not adequately address the enormous risk that building a dam creates for already-declining salmon runs and other aquatic life. According to the EIS, "as compared to the other action alternatives, Alternative 1 would result in more impacts to native salmon and aquatic species as a result of permanent and large-scale changes to the Chehalis River and floodplain caused by a Flood Retention Facility."

The environmental impact that a dam would have on the Chehalis Basin is substantial. Although a Flood Retention Facility would reduce (but not eliminate) flood damage, the damage caused to native fish runs due to migration blockage, changes to habitat in the reservoir area, and permanent alteration of the river's natural flow would far outweigh any benefits of the proposed habitat restoration work. We also believe the cost estimates for both dam options are underestimated, and should be re-evaluated. In particular, costs for dam maintenance were not included.

How fish passage past the dams would be provided (especially the FRFA) is at best conceptual. It is not clear that adequate fish passage can be provided, as this has not been analyzed in detail. See Draft EIS at 285. The "programmatic EIS first-project EIS second" nature of this process could very well result in a dam alternative being selected with no assurance that fish passage would ultimately be successful. Any fish passage method ultimately selected should operate through permanent features of the dam (i.e., fish ladders rather than trap and haul facilities), so that continued human intervention is not needed to provide for fish survival.

Past experience with other dams suggests that it is extremely unlikely that a dam would have a positive effect on fish populations. This needs to be better understood. In particular, what is the probability that either dam would cause one or more fish populations to become ESA-listed or at a greater risk of ESA listing? Tribal fishing rights also need to be better addressed. The Ninth Circuit Court of Appeals, in *United States v. Washington*, No. 13-35474 (the "culvert case") recently very strongly affirmed the proposition that Tribal treaty rights to fish necessarily include protection of fish populations. What effect is a dam on the Chehalis, with the associated habitat destruction, predicted to have on the treaty fishing rights of the Native American Tribes in the region?

The reach of the river upstream from the proposed dam is particularly valuable as habitat for fish and other species. In general, fish densities are highest in the upper Chehalis. The upper reaches of the river, where there is higher interaction between the river and groundwater, are thought to be temperature refugia (an especially important consideration as the effects of climate change are increasingly felt in the region). See Draft PEIS at 141. Salmon and steelhead densities are reported to be higher at sites within 1 mile of the dam than further away; juvenile Chinook were only observed in this area. Id. at 142. Additionally, juvenile coho are found upstream of the proposed dam. Id. The reach of the Chehalis upstream of Pe Ell is the only part of the mainstem where coho are known to spawn. Id. at 145. The Western Toad is also known to breed only in the area near the proposed dam site. Id. at 159.

The Draft PEIS does not adequately look at the impact of a large dam on downstream transport of large woody material, and impoundment of this material would likely have a negative effect on habitat downstream of the dam (especially on the mainstem Chehalis). This needs to be addressed.

Another major concern regarding a dam is water temperature. From the data presented in Fig. 4.2-4 of the Draft PEIS, the FRO option in particular is expected to increase water temperature for about 10 miles downstream of the dam. Given that temperature already exceeds the criteria for salmonids, it is difficult to see how this is acceptable. Should the dam project ultimately require a certification under Section 401 of the Clean Water Act, the temperature issue could present a real hurdle. The predicted effects of climate change make increased temperature excursions even more concerning.

For the FRFA alternative, the predicted improvement (decrease) in water temperature would be produced by releasing cool water from deeper in the reservoir. See Draft PEIS at 256. However, this water would also have much lower dissolved oxygen (DO) levels. Fig. 4.2-3 shows that DO levels at depth in the reservoir are predicted to be far below the criteria of 9.5 mg/L. What would the net effect on salmonids from this cool, low-oxygen water be?

In summary CELP rejects this alternative because 1) the environmental impacts to fish and fish habitat are unacceptable; 2) the costs of the dams appear to be understated – typically dam projects run well over initial budgets; 3) sediment and woody debris transport analysis is weak and needs additional study; 4) effects on water quality beyond temperature and dissolved oxygen needs further analysis; 4) impacts on wildlife beyond salmon needs much more consideration and investigation; 6) the impacts of further disconnecting natural geomorphic processes and the ecosystem services they provide (including water filtration, nutrient cycling, and flood reduction) needs to be considered in the benefit/cost analysis; and 7) the dams would also eliminate recreational river boating opportunities in the impounded areas. In addition, building a dam would almost certainly promote development of the floodplains downstream – just as it has on the Green and Puyallup Rivers.

### **Alternative 2: Structural Flood Protection Without Flood Retention Facility**

This Alternative does reduce flood damage through the construction of the Airport Levee Improvements and I-5 Projects, and has benefits for aquatic species. However, this alternative

receives the weakest analysis of the four presented. The PEIS includes a number of LFDRA elements, but the document makes no prescriptions and presents no mechanism of implementation. LFDRA Actions can be implemented immediately and probably at lowest cost, however no economic analysis was done on most of its elements. The PEIS should present and evaluate a proposal for implementing actions such as elevating of structures, buy-outs, flood-proofing, farm pads, alarm systems, floodplain land use management, and the other elements it mentions. Our biggest concern regarding this alternative is the permanent loss of wetlands would be required to construct the levees and I-5 Projects. A full analysis of the impact to aquatic species and wildlife from any of these construction projects should be included. The extent of potential impacts on tribal and cultural resources is also a concern, and additional analysis and tribal consultation are needed to be able to proceed.

CELP thinks there is merit to some of the projects in this alternative, but the PEIS lacks sufficient detail as to how these projects would be implemented or adequate analysis of the environmental impacts to fully support this alternative.

### **Alternative 3: Nonstructural Flood Protection**

This alternative lacks the flood protection for the basin, but would result in a greater benefit to aquatic species habitat function than Alternatives 1 and 2.

### **Alternative 4: Restorative Flood Protection**

This alternative has some clear advantages in that it provides flood reduction, and provides for greater protection of habitat and aquatic species. It is a truly integrated approach, combining flood damage mitigation with aquatic species restoration in one action. This is the direction of the most innovative approaches to flood management now being developed. However, both its engineering and costs are in very early stages of development, and should be fully fleshed out before a final EIS is prepared. This alternative is also controversial because some landowners will have to be relocated. More analysis of the costs and benefits needs to be done.

In addition the PEIS should include a thorough analysis of the water rights in the basin and the effect of the FRFA reservoir operation on those rights. Water in the Chehalis basin is over-appropriated; serious consideration is needed in order to protect river flows ostensibly dedicated to fish from appropriation through wells and surface diversion. The PEIS refers to a “new water source” for the City of Pe Ell to compensate for the effects of a dam on the existing water supply. See Draft PEIS at 248. However, there is no discussion of where this “new water” would come from, or whether a water right would actually be available.

In conclusion, we strongly support the concept behind the Aquatic Species Habitat Actions, but note that the details have not yet been released. We oppose construction of the dam alternatives based on the information presented in the Draft PEIS. Local-scale Flood Damage Reduction Actions need to be much more completely developed as a real alternative and not simply a list of possible elements, and then analyzed. The relationship between forest practices in the uplands and the hydrology of the Chehalis River system needs to be characterized and understood as part of this process.

CELP would support options that both allow the floodplain to retain its natural flow and take measures to reduce the impact of flooding on communities. Accordingly, we would like to see a new alternative developed with a combination of some of the aspects of Alternatives 2, 3 and 4 that adequately addresses flooding, and protects and enhances aquatic species habitat.

Thank you for your attention to these comments.

A handwritten signature in black ink that reads "Trish Rolfe". The signature is written in a cursive, flowing style.

Trish Rolfe,  
Executive Director  
Center for Environmental Law & Policy

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Tuesday, November 1, 2016 9:37 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** Response-to-EIS-Flooding.docx

Comment Form

**First Name:** Ann

**Last Name:** Stout

**Organization:** Centralia Christian School

**Address:** 1315 South Tower Ave  
Centralia, WA 98531  
United States of America

**Phone:** 3607367657

**Email:** astout@centraliachristianschool.org

**Comments:** Please see the attached file for Centralia Christian School's comments on the EIS for Chehalis Basin Flooding.  
Thank you.

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/Response-to-EIS-Flooding.docx>

**File Upload (2):**

**File Upload (3):**

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CENTRALIA CHRISTIAN SCHOOL  
1315 SOUTH TOWER  
CENTRALIA, WA 98531

October 31, 2016

To: Chehalis Basin Strategy

Re: Comments in response to EIS

Centralia Christian School supports Alternative 1 of the EIS currently being considered for mitigating flooding in the Chehalis River Basin.

Building a flood retention dam would protect the greatest number of citizens as well as their property. Centralia Christian School has been severely impacted by Chehalis Basin flooding. In 2007 our building was inundated with 18 inches of water. This caused considerable damage to our building including the need to replace our recently installed hardwood floor in our gym.

Our school board members agree that Alternative 1 is the best option. Action toward this end should begin as soon as possible to prevent future flood damages.

Thank you for your tireless work in this long, complex project. We feel confident your efforts will be rewarded with the protection of people's lives, property, as well as aquatic species.

*Ann C. Stout, Ed. D.*

*Principal, Centralia Christian School*

[e | astout@centraliachristianschool.org](mailto:astout@centraliachristianschool.org)

[w | 360 736 7657](tel:3607367657)

[c | 360 520 9612](tel:3605209612)

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, October 17, 2016 8:05 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Dan  
**Last Name:** Swecker  
**Organization:** Centralia Christian School Foundation chairman  
**Address:** 10420 173rd Ave SW  
Rochester, WA 98579  
United States of America  
**Phone:** 360-273-6612  
**Email:** dansw@wfga.net

**Comments:** The flood of 2007 and previous floods have devastated the economy of Lewis and So. Thurston Counties. We have seen a dramatic drop in enrollment at our private school as a result. Many of the flooded homes have been abandoned or turned into rentals. Average incomes have dropped so many families can not afford the tuition. Many businesses have closed. We need Alternative #1. It has the most potential to reverse the course of our economy and restore our community.

**File Upload  
(1):**

**File Upload  
(2):**

**File Upload  
(3):**

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, October 17, 2016 7:10 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Cristi

**Last Name:** Heitschmidt

**Organization:** Centralia College

**Address:** 600 Centralia College Blvd.  
Centralia, WA 98531  
United States of America

**Phone:**

**Email:**

**Comments:** "I agree and endorse Alternative 1 which is a flood retention dam on the upper Chehalis river and an aggressive aquatic species enhancement effort across the basin. "

**File Upload  
(1):**

**File Upload  
(2):**

**File Upload  
(3):**

This email was built and sent using [Visual Form Builder](#).

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Wednesday, November 9, 2016 11:23 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** CBFTF-comment-letter-on-Chehalis-PEIS.pdf

Comment Form

**First Name:** Lonnie

**Last Name:** Crumley

**Organization:** Chehalis Basin Fisheries Task Force

**Address:** 2090 Beerbower Road  
Elma, WA 98541  
United States of America

**Phone:** 360-482-3037

**Email:** cbftf@reachone.com

**Comments:** See attached letter

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/CBFTF-comment-letter-on-Chehalis-PEIS.pdf>

**File Upload (2):**

**File Upload (3):**

This email was built and sent using [Visual Form Builder](#).



**Chehalis Basin  
Fisheries Task Force**

2090 W. Beerbower Rd.  
Elma, WA 98541

Phone  
360-482-2347

Fax  
360-482-2349

E-mail  
[cbftf@reachone.com](mailto:cbftf@reachone.com)

Website  
<http://www.cbftf.com>

Chehalis Basin Strategy EIS, c/o Anchor QEA  
720 Olive Way, Suite 1900  
Seattle, Washington 98101

November 9, 2016

RE: Draft Programmatic Environmental Impact Statement for the Chehalis Basin Strategy (PEIS)

To Whom it May Concern:

The Chehalis Basin Fisheries Task Force (CBFTF) is a non-profit, 501-C3 volunteer group which is one of 14 Regional Fisheries Enhancement Groups (RFEGs), operating in 14 of the major watersheds across the state. RFEGs were created and funded by the state legislature in 1980 by a surcharge on sport and commercial fishing license purchases. The Washington Department of Fish and Wildlife is our parent agency which manages these funds and allots them equally to each group across the state. The groups' primary objective is to enhance anadromous salmon runs and improve habitat that benefits our salmon stocks and to advocate for a healthy environment that supports increased salmon populations that have been depleted. The RFEGs are the primary volunteer groups across the state that does most of the habitat and fish restoration projects state wide at this time. The Task Force was started under another name in the mid 1970s by local citizens and political leaders in SW Washington and then used by the legislature as a template for the other RFEG groups across the state. The Task Force continues to be a leader in the Chehalis Basin in project implementation to restore fish habitat and enhance fish runs. The Task Force works with local governments, tribes and citizens to improve habitat for fish as well as other aquatic species. It has completed hundreds of projects to date, opening several hundred miles of fish habitat and will participate in implementing the Aquatic Species Restoration Plan however possible to continue to improve habitat for all aquatic species in the basin.

Regarding the PEIS, the Task Force supports all the proposed environmental enhancements in the high restoration option, except that portion which recommends a dam. The Task Force does not support dam construction on any sub-basin in the Chehalis system. The installation of the dam at the proposed location will impact spawning and rearing for spring Chinook, coho and steelhead. The restoration efforts being proposed in the first option other than the dam, if implemented properly, could bring our fish populations up to a healthy level for each of the streams in which treatments are completed. This is a good objective to strive for that will benefit all aquatic resources in each of those sub-watersheds. However, the claim that overall Chinook populations will be increased by increasing populations in neighboring streams will be a net benefit by making up for fish lost at the dam location is shortsighted and ill-advised. Our

view is that each stream can only support a certain population level and the current levels of fish populations in all streams in the upper and lower basin are depleted. That means there is an overwhelming amount of work that could be done to improve fish abundance in the Chehalis system to bring it to natural production levels. Fish and aquatic species populations can only be brought up to what that stream or watershed can support at its individual carrying capacity. Implementing projects in other streams to increase fish populations to make up for losses at the dam location is not a realistic view or a net gain, but only brings the system up to a more natural production level which should be worked toward regardless of dam construction. The installation of the dam is still going to be a net loss because it is a loss of habitat that currently exists which could also produce fish. Habitat improvements will help increase fish populations, but there is no assurance that these projects will bring a stream up to what its potential carrying capacity could be. Loss of habitat at the dam location or anywhere in the basin is not a viable option when fish populations are currently in a sharp decline. One need only look at the dam on the Wynoochee River, which has unaddressed, ongoing coho residualization and downstream passage impacts on fish runs in that system for an example of why dams are not compatible with fish "enhancement." No fish passage facilities are completely effective, and proposed upstream juvenile passage on the proposed facility is particularly problematic, as discussed below. Nationally, it is recognized that dams cause more harm than good, and efforts are consistently under way to remove these features. Elwha dam removal in Port Angeles is an example of the cost and effort taken to correct past mistakes. The Task Force does not support installing fish passage barriers, especially one causing such large-scale impact, in the Chehalis Basin.

The PEIS calls for upstream juvenile fish passage at the dam. No description is given as to what design would be used. Providing a ladder for upstream juvenile passage, if it could be done at all, would be extremely expensive due to flow and slope constraints, and it is unknown if it could be configured to effectively attract juveniles into the passage facility. Cost, feasibility and effectiveness need to be examined before assuming upstream juvenile fish passage would not be impacted by dam construction and operation. This would be a significant impact that has not been fully evaluated. Overall, the Ecological Diagnostic Treatment (EDT) model may well be misapplied in the PEIS. The Chehalis system is a rain-fed basin, not snow- or glacial-fed like nearby watersheds on the coast. We are of the understanding that EDT uses these nearby coastal river systems to assist in modeling future trends in the Chehalis system. Using other coastal streams in model application most likely does not produce an accurate result of the dam's watershed impacts and may not reflect salmon population increases accurately because of the differences in water source and hydrology.

Additionally, the installation of a dam may or may not benefit those landowners downstream depending on which watershed will be struck by an unusual rain event. Just two years ago, the Newkah River in the lower basin was struck by one of these events, but since it was a smaller river system with few farms the only damage of note was road failure and mass wasting in some of the logging units. The point is nobody can predict where one of these events may strike and it is the Task Force's position that other more realistic measures should be taken to protect the human populations downstream of all

the sub-basins in the watershed. Installing this dam will be giving citizens false hope that they are protected when in fact they are not. If dams are the answer then each of the upper basin watersheds should be dammed, which is not a realistic approach or cost effective, and would eliminate large areas of fish habitat. Property buyouts, moving structures out of the flood plain, improvements in forest and agricultural management techniques, all of which are environmentally sound options, are options the Task Force can support.

The option of moving farmers out of the floodplain would diminish agriculture in the valley and logging. This is an extreme approach and one that is unrealistic. Moving homes, barns and farm buildings out of the floodplain should not mean that agriculture should be diminished. It should be done in a manner that housing of farmers and livestock would be located above the flood zones. There is no reason farming could not continue in the rich farmlands of the floodplain during the months and years when flooding does not occur. It would be more beneficial and feasible to move people to higher ground and subsidize the farmers to do this and cover whatever extra costs it would require to be able to continue farming their lands. Livestock could still graze the floodplain areas during spring, summer and fall months. They would only need to be moved out during flood-prone periods in the winter.

Forest management especially needs to be reviewed since water retention in the upper watersheds has been diminished substantially by the current logging practices. Again, this does not mean no logging. It means improving logging and clear cutting scale and harvest rotation cycles. Logging should be managed on a percentage of tree removal in each watershed, allowing enough mature trees or trees in the age class of 20 years or more to dominate a watershed. At this point clear-cuts dominate the landscape allowing for fast run-off and high peak flows during these extreme rain events. Road building on unstable, side-cast slopes was also a primary cause of the debris jams during the 2007 event and should be ameliorated.

Large woody debris projects are recommended. These can be a beneficial fish enhancement tool in some of the subbasins and tributaries of the mainstem Chehalis. The Task Force strongly recommends against installing large wood structures in the mainstem of the Chehalis. The fluctuation of water levels in the mainstem on normal flooding events can be as much as 20 feet. The hydraulic power of higher flows even in normal years is tremendous; to expect any kind of in river structure to be sustained through flood events is unrealistic and in most cases would be funds wasted. These areas are primarily fish migration corridors and wood structures would provide relatively small benefit in comparison to other restoration efforts.

One of the main restoration priorities in the basin is the correction or removal of fish passage barriers, either culverts or other types of human-made obstacles. We have well over 2000 of these barriers documented in the Chehalis Basin. The PEIS recommends correcting 400, a mere 20%. Overall, the PEIS's focus on mainstem river habitat does not sufficiently recognize that most of the spawning and virtually all fish rearing habitat is in the tributaries or subbasins. Greater emphasis needs to be given to tributary habitat

and access restoration. Many more than 400 barriers will need to be corrected to achieve aquatic species restoration. This is a very cost-effective way to expand use of available habitat and should be given more emphasis in the PEIS.

One last concern for the CBFTF is the current fish management regime. Harvest rates and fisheries monitoring needs to be reviewed with an eye towards improving Chehalis fish runs. This includes tribal, non-Indian commercial and sport or recreational fisheries. Up to recent years mass marking of all hatchery fish has been the rule with fishers only allowed to keep marked hatchery fish. This primarily affects troll, charter and private sport fishermen. When this policy was started most of the fish being caught were hatchery or marked fish, thus all unmarked fish had to be released. However, over the years the ratio of marked to unmarked fish has changed dramatically. The ratio is now about 17 unmarked fish to 1 marked fish being hooked. So to catch a legal marked fish an angler has to catch and release 15 to 20 unmarked fish to find one that is marked. This results in a great number of fish being unnecessarily injured or killed during the harvest process, (Hooking Mortality). The Task Force believes that this ratio of increased unmarked non-hatchery fish is due in part to the multitude of fish restoration projects that have been completed coast wide and in the Chehalis Basin in particular. Many fish barrier culvert corrections have been completed, opening up hundreds of miles of habitat for rearing and spawning and improving fish production and survival. Unfortunately, high mortality of the unmarked, wild fish due to being caught and released is working against these recovery efforts. The agencies estimate about a 10 to 12 percent hooking mortality, when past studies by the Department of Fish and Wildlife and in Canada indicate mortality rates of caught and released fish ranges from 40 to 60 percent. Since we are not seeing a large increase in returning adults as natural spawners an assumption might be made that hooking mortalities are impacting naturally spawning salmonids at a higher rate than what is being calculated. This needs to be investigated. One alternative might be to allow anglers to catch the first two or three fish they land and call it a day. Eliminating catch and release practices may increase fish coming back to our streams. This is all part of restoring our natural spawning fish populations.

To date, the Chehalis Basin has been able to avoid having any fish stocks listed as federally endangered. The high restoration scenario will help ensure no future listings occur. Dam construction, on the other hand, will work toward creating an environment where listings, particularly of spring Chinook, are more likely. Flooding impacts should be addressed by other flood-proofing measures, not including dam construction.

Thank you for the opportunity to comment on the PEIS.

Sincerely,



Lonnie Crumley,  
Chair

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 2:33 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** PEIS-and-Chehalis-Salmon-Strategy\_CBLE\_comment\_111416.pdf

Comment Form

**First Name:** Kirsten  
**Last Name:** Harma  
**Organization:** Chehalis Basin Lead Entity Habitat Work Group  
**Address:** 420 Howanut Rd  
Oakville, WA 98568  
United States of America  
**Phone:**  
**Email:** kharma@chehalisribe.org

The Chehalis Basin Lead Entity works to restore and protect salmon habitat and fulfills the requirements of Salmon Recovery Chapter 77.85 RCW, in the Chehalis Basin, WRIA 22 and 23. In 2011, the Lead Entity released its strategy: "Grays Harbor County Lead Entity Habitat Work Group (2011). The Chehalis Basin Salmon Habitat Restoration and Preservation Strategy for WRIA 22 and 23." Referred to hereafter as the Salmon Strategy.

**Comments:** The alternatives and elements in the draft Programmatic Environmental Impact Statement (PEIS) directly intersect with the goals of the Chehalis Lead Entity. This comment letter describes how the PEIS elements support or inhibit successful achievement of salmon recovery. It is organized by each of the goals outlined in the Lead Entity's Salmon Strategy.

Goal 1: "Attain a healthy and diverse population of wild salmonids"  
This goal recommends supporting the species most likely to go extinct without our help (wild salmon stocks that are listed as Depressed, Threatened or Endangered.)  
"Depressed" stock are those included in WDFW's SaSI database. "Depressed" stock include: summer Chinook in the Satsop, and Chehalis River mainstem; Coho in the Wishkah, Winter Steelhead in the Humptulips, Hoquiam, Satsop and Chehalis mainstem.

Aquatic Species Habitat Actions  
As it is written in the PEIS, the Aquatic Species Habitat Actions (ASHA) address species,

not stocks differentiated by spawning location, and thus miss the critical need to restore habitat for those stocks most likely to go extinct.

The PEIS's "Low" restoration scenario targets spring run Chinook salmon in the middle and upper Chehalis River Mainstem, rather than addressing all species or even all depressed stocks throughout the Chehalis Basin (Section 2.3.3.3). While some benefit can be expected to be realized by restoration efforts under the low scenario, this scenario does not fully support Goal 1.

The PEIS's "High" restoration scenario in the Aquatic Species Habitat Actions supports this Goal 1 by addressing restoration for multiple species and basinwide.

Recommendation: Support implementation of the "High" restoration scenario, and include targeted work to restore habitat for depressed stock throughout the basin.

Flood Retention Facilities- FRFA and FRO:

Modeling results reported in the draft PEIS suggests that either dam alternative will negatively affect depressed stock of spring run Chinook in the mainstem Chehalis, the majority of which are wild.

The FRFA would directly impact wild fish, especially runs of the species more at risk: "depressed" stock of Chinook and Steelhead in the mainstem. The installation of the FRFA dam would eliminate spawning habitat that currently produces fish, leading to further decline of fish populations that are already in decline.

The PEIS's analysis of the Flood Retention Facilities options and various operation scenarios did not look at sustainability of fish populations over time resulting from impacts on juveniles. The PEIS implies that there could be further declines in salmonid populations as a result of the dams. The PEIS states in Table 4.2-5 that only 54% of salmonid juveniles would survive "traps and transport" for either FRFA or FRO option. Further, the PEIS fails to address the compounding stress impacts of multiple transportations during the juvenile life history phase which would be required to replicate their observed movement patterns (Chapter 3, p. 143). The analysis doesn't include how these and other impacts of the dam operations could impact salmonid sustainability over time.

These are just a few examples of the potential adverse impacts of these dam options on wild salmonids. Either dam scenario will significantly alter fish passage and habitat and cause ongoing impacts to riverine processes that run counter to the Salmon Strategy goals.

Goal 2: "Restore, enhance, and protect the Grays Harbor Estuary"

Aberdeen/Hoquiam Levee Project

A juvenile fish use study completed by the Wild Fish Conservancy in 2015 notes that the Grays Harbor Estuary is home to juvenile Coho year round, with production high along the Hoquiam River and abundance high in tidal sloughs with some freshwater input (Wild Fish Conservancy, 2015). The Aberdeen/Hoquiam levee project has the potential to negatively impact juvenile coho habitat in an intertidal area adjacent to the Grays Harbor estuary. If this action element is pursued, the project should meet the highest

standards to minimize impact to the greatest extent possible. Adverse impacts that cannot be avoided should be mitigated through comprehensive restoration.

Goal 3: “Restore and Preserve properly functioning riparian areas”

#### Aquatic Species Habitat Actions

The Aquatic Species Habitat Actions aligns with this goal by helping to restore properly functioning riparian areas. The “High” restoration scenario would provide much greater benefits due to the magnitude of the project being proposed and the inclusion of more sub-basins.

The Salmon Strategy recommends supporting healthy riparian systems through several additional strategies: addressing legacy of poor forest practices, assisting landowners reduce the impacts of livestock, and ensuring that “Forest and Fish” rules are being implemented. The assumption in section 4.8.4.2.1 of the PEIS that riparian buffers will mature in “managed forests” on their own is noted as an uncertainty, with as low as 20% effectiveness. This suggests that more a more pro-active approach is needed to restoring riparian areas in these areas which contain a vast network of tributary streams.

Recommendation: Take actions to ensure that best management practices in the forested headwaters be implemented as part of the strategy and toolbox to restore natural river processes on a basin-wide scale.

Where this restoration occurs will be important. The Salmon Strategy identifies the need for restoration and protection of functioning riparian areas high up in tributaries. Tributaries are key to salmonid rearing and spawning. Yet most PEIS restoration actions (even the “high” restoration scenario 4.8.4.2.1), are planned for lower in main channels.

Recommendations: Support implementation of the “High” restoration scenario, take additional measures to ensure implementation of Forest and Fish rules, and support additional restoration in tributary areas.

#### Restorative Flood Protection

This approach states that it aims to restore natural habitat forming processes in the area where treatment takes place. This element supports the Salmon Strategy recommendations for restoring habitat forming processes. If implemented, it could provide tangible habitat benefits and enhance the natural flood storage capacity of the Basin through restoration of riparian function. Further details are needed to determine feasibility.

Goal 4: “Restore Habitat Access. Replacing dysfunctional culverts in order to allow salmon passage is a high priority throughout the Chehalis Watershed.”

#### Aquatic Species Habitat Actions

The Aquatic Species Habitat Actions includes plans for replacing barrier culverts, which supports this high priority Lead Entity goal. The “High” scenario is likely to offer significantly greater restoration benefit to fish passage due to the relative scale and geographic range proposed as compared to the “low” restoration scenario. As an additional note, the language in the PEIS should be corrected to include the word

“correction” rather than “removal,” which implies abandonment without the addition of a fish-passable structure.

Section 4.8.4.2.1 states that this alternative will address 400 culverts over 100 years of the restoration program. The 2008 inventory of culverts and other barriers (regardless of ownership) in WRIA 22 and 23 includes over 2,000 barriers as identified using WDFW barrier assessment methods. The Salmon Strategy states that the top third are high priority for correction, which is closer to 650.

Recommendation: Aim for a higher number and accelerated rate of barrier corrections to maximize habitat gain needed in the near-term.

#### Goal 5: Restore properly functioning hydrology

Flood Retention Facilities- FRFA and FRO: Both dam alternatives in the PEIS are projected to change hydrologic regimes in the main stem of the Chehalis River even with careful planning for flow maintenance. The Salmon Strategy calls for reversing historic hydrologic manipulations of the Chehalis River and its floodplain, not increasing them.

The FRFA, if managed appropriately, claims to lead to improvements in water temperature through summer flow augmentation. The Lead Entity plan recommends water storage projects that augment summer low flows. However, those envisioned storage projects mimic natural processes (include wetland restoration, aquifer recharge, and reconnecting off-channel habitat) and would be small and distributed throughout the basin. A dam is not included in the plan as a recommended water storage project or method to address water quality and quantity limiting factors.

Claims that the FRFA will provide beneficial cold water for fish are not substantially supported. Section 4.2.4.2.1 states: “The behavioral response of adult spring chinook salmon in the Chehalis River to modulating temperature and flow from the FRFA facility is unknown and represents a key uncertainty,” with further detail in Appendix K.

The FRFA dam should not be considered the solution to improving and preventing degradation of water quality or improving low summer flows and water temperature in the Chehalis. A more comprehensive basin-wide approach is needed to meet those goals.

#### Aquatic Species Habitat Actions

The actions listed in Section 2.3.3.3 include removing barrier culverts, reconnecting side channels and restoring riparian areas. If implemented, these actions would help improve localized groundwater recharge and natural flow regimes that support a naturalized and properly functioning hydrology.

The literature review in Appendix A of the PEIS states that some forest practices can lead to increased channel forming flows, which can be detrimental to fish habitat in the headwaters of the basin. Peak flows also increase after clear-cuts in the smaller headwater catchments, which can scour fish habitat. Thus, implementing forestry best-practices will be an important part of a strategy to protect aquatic life in the Chehalis. Tributary habitat should not be ignored in a plan to restore aquatic species in the Chehalis.

Goal 6: “Restore floodplain and stream channel function.” Projects that restore floodplain function are a major priority in the Chehalis Basin.

### Aquatic Species Habitat Actions

The Lead Entity's Salmon Strategy states that it would like to see at least one major floodplain restoration project proposed annually. The Aquatic Species Habitat Actions (2.3.3.3) include reconnecting oxbows, removing levees and bank armoring, and improving the connection between the river and its floodplain, all of which work to restore floodplain function. Thus, these Habitat Actions actions are supportive of the Salmon Strategy. With concentrated efforts and dedicated funding, the Aquatic Species Habitat Actions would be a huge opportunity to make this goal a reality and make real and needed improvements to habitat conditions in the basin.

The Salmon Strategy mentions: "In the short-term, large woody debris projects are important to implement throughout all subbasins." The types of large woody debris projects (section 2.3.3.3) proposed are supportive of this recommendation. This need is present throughout all sub-basins in the Chehalis, not just the mainstem. Thus, the "high" restoration scenario is preferable to the "low" restoration scenario.

Recommendation: Support implementation of projects that restore floodplain function throughout the entire basin. In implementation of the Aquatic Species Habitat Actions, consider implementing LWD projects higher in the river basins, where they are substantially less expensive to implement and, in some cases, are more feasible.

### Restorative Flood Protection

The Salmon Strategy recommends process-based restoration as the strategy for addressing physical factors that limit salmon populations. The Restorative Flood Protection alternative could work at a landscape scale to change land use in the floodplains to more natural river and floodplain conditions. More details of this proposal need to be developed before impacts on resources and salmon can be fully understood.

### Conclusion

The Aquatic Species Habitat Actions align with local goals for salmon recovery in the Chehalis Basin. The "high" restoration scenario would more fully realize them than the "low" scenario. High level ASHA alternatives will have significant positive impacts on salmon and other aquatic species by restoring the natural processes of this dynamic river system. Restoring these natural processes will reduce the risk of flood damage by buffering high flow events and work in concert with the local-scale damage reductions actions to the mutual benefit of basin residents and salmon. For the health and well-being of our fish populations and communities basin-wide, we strongly encourage investment in these restoration elements.

The combination of elements in Alternatives 2 and 3 could provide solutions for addressing flood damage and for improving conditions for native salmonids in the Chehalis Basin. The Restorative Flood Protection elements in Alternative 4 potentially provides a process-based solution in line with the Salmon Strategy. Its technical and economic details need to be further developed before a decision as to feasibility is possible. Whether fully implemented as the selected "Alternative" or not, the principles of Restorative Flood Protection are worth exploring further.

The information presented about the dam alternatives in the PEIS includes several data gaps, uncertainties and incomplete analyses. These include an inadequate analysis of the

impacts of the various dam elements on groundwater, sediment transport, water quality, and cold water release benefits to fish, to name a few. The PEIS does not show sufficient evidence that the combination of elements in Alternative 1 support flood damage reduction without compromising native salmonid runs in the Chehalis Basin. We recommend that you do not support implementation of either proposed Flood Retention Facility. We recommend that the final selection of flood damage reduction alternative, or combination of elements, be based on scientific understanding of all hydrological and biological implications and not compromise fish populations.

The overall intention of the habitat goals of the Chehalis Strategy reflect the goals conveyed in the Lead Entity strategy. From the Salmon Strategy: “The Chehalis Basin needs to communicate to citizens and legislators statewide that the quality and size of this watershed mandates greater public and private investment for its natural resource management. The importance of this basin to the statewide vision for salmon recovery needs greater emphasis.” The Chehalis Basin Lead Entity commends you for having the awareness and vision to include the Aquatic Species Habitat Actions across each of the Alternatives recommended.

Thank you for providing us with this opportunity to comment on how the draft PEIS aligns with the Chehalis Basin Lead Entity’s Salmon Strategy and help shape the future of our basin.

Sincerely,  
Kirsten Harma  
Watershed Coordinator  
On behalf of the Chehalis Basin Lead Entity Habitat Work Group.

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[http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/PEIS-and-Chehalis-Salmon-Strategy\\_CBLE\\_comment\\_111416.pdf](http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/PEIS-and-Chehalis-Salmon-Strategy_CBLE_comment_111416.pdf)

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(2):**

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Chehalis Basin Lead Entity Habitat Work Group  
420 Howanut Rd.  
Oakville, WA  
98568  
www.chehalisleadentity.org

Chehalis Basin Strategy EIS  
Department of Ecology  
% Anchor QEA  
720 Olive Way, Suite 1900  
Seattle, WA 98101

November 14, 2016

**Re: Comments on draft SEPA Chehalis Basin Programmatic Environmental Impact Statement.**

The Chehalis Basin Lead Entity works to restore and protect salmon habitat and fulfils the requirements of Salmon Recovery Chapter 77.85 RCW, in the Chehalis Basin, WRIA 22 and 23. In 2011, the Lead Entity released its strategy: *"Grays Harbor County Lead Entity Habitat Work Group (2011). The Chehalis Basin Salmon Habitat Restoration and Preservation Strategy for WRIA 22 and 23."* Referred to hereafter as the Salmon Strategy.

The alternatives and elements in the draft Programmatic Environmental Impact Statement (PEIS) directly intersect with the goals of the Chehalis Lead Entity. This comment letter describes how the PEIS elements support or inhibit successful achievement of salmon recovery. It is organized by each of the goals outlined in the Lead Entity's Salmon Strategy.

**Goal 1: "Attain a healthy and diverse population of wild salmonids"**

This goal recommends supporting the species most likely to go extinct without our help (wild salmon stocks that are listed as Depressed, Threatened or Endangered.) "Depressed" stock are those included in WDFW's SaSI database. "Depressed" stock include: summer Chinook in the Satsop, and Chehalis River mainstem; Coho in the Wishkah, Winter Steelhead in the Humptulips, Hoquiam, Satsop and Chehalis mainstem.

Aquatic Species Habitat Actions

As it is written in the PEIS, the Aquatic Species Habitat Actions (ASHA) address species, not stocks differentiated by spawning location, and thus miss the critical need to restore habitat for those stocks most likely to go extinct.

The PEIS's "Low" restoration scenario targets spring run Chinook salmon in the middle and upper Chehalis River Mainstem, rather than addressing all species or even all depressed stocks throughout the Chehalis Basin (Section 2.3.3.3). While some benefit can be expected to be realized by restoration efforts under the low scenario, this scenario does not fully support Goal 1.

The PEIS's "High" restoration scenario in the Aquatic Species Habitat Actions supports this Goal 1 by addressing restoration for multiple species and basinwide.

Recommendation: Support implementation of the "High" restoration scenario, and include targeted work to restore habitat for depressed stock throughout the basin.

#### Flood Retention Facilities- FRFA and FRO:

Modeling results reported in the draft PEIS suggests that either dam alternative will negatively affect depressed stock of spring run Chinook in the mainstem Chehalis, the majority of which are wild.

The FRFA would directly impact wild fish, especially runs of the species more at risk: "depressed" stock of Chinook and Steelhead in the mainstem. The installation of the FRFA dam would eliminate spawning habitat that currently produces fish, leading to further decline of fish populations that are already in decline.

The PEIS's analysis of the Flood Retention Facilities options and various operation scenarios did not look at sustainability of fish populations over time resulting from impacts on juveniles. The PEIS implies that there could be further declines in salmonid populations as a result of the dams. The PEIS states in Table 4.2-5 that only 54% of salmonid juveniles would survive "traps and transport" for either FRFA or FRO option. Further, the PEIS fails to address the compounding stress impacts of multiple transportations during the juvenile life history phase which would be required to replicate their observed movement patterns (Chapter 3, p. 143). The analysis doesn't include how these and other impacts of the dam operations could impact salmonid sustainability over time.

These are just a few examples of the potential adverse impacts of these dam options on wild salmonids. Either dam scenario will significantly alter fish passage and habitat and cause ongoing impacts to riverine processes that run counter to the Salmon Strategy goals.

### **Goal 2: "Restore, enhance, and protect the Grays Harbor Estuary"**

#### Aberdeen/Hoquiam Levee Project

A juvenile fish use study completed by the Wild Fish Conservancy in 2015 notes that the Grays Harbor Estuary is home to juvenile Coho year round, with production high along the Hoquiam River and abundance high in tidal sloughs with some freshwater input (Wild Fish Conservancy, 2015). The Aberdeen/Hoquiam levee project has the potential to negatively impact juvenile coho habitat in an intertidal area adjacent to the Grays Harbor estuary. If this action element is pursued, the project should meet the highest standards to minimize impact to the greatest extent possible. Adverse impacts that cannot be avoided should be mitigated through comprehensive restoration.

### **Goal 3: "Restore and Preserve properly functioning riparian areas"**

#### Aquatic Species Habitat Actions

The Aquatic Species Habitat Actions aligns with this goal by helping to restore properly functioning riparian areas. The “High” restoration scenario would provide much greater benefits due to the magnitude of the project being proposed and the inclusion of more sub-basins.

The Salmon Strategy recommends supporting healthy riparian systems through several additional strategies: addressing legacy of poor forest practices, assisting landowners reduce the impacts of livestock, and ensuring that “Forest and Fish” rules are being implemented. The assumption in section 4.8.4.2.1 of the PEIS that riparian buffers will mature in “managed forests” on their own is noted as an uncertainty, with as low as 20% effectiveness. This suggests that more a more pro-active approach is needed to restoring riparian areas in these areas which contain a vast network of tributary streams. Recommendation: Take actions to ensure that best management practices in the forested headwaters be implemented as part of the strategy and toolbox to restore natural river processes on a basin-wide scale.

Where this restoration occurs will be important. The Salmon Strategy identifies the need for restoration and protection of functioning riparian areas high up in tributaries. Tributaries are key to salmonid rearing and spawning. Yet most PEIS restoration actions (even the “high” restoration scenario 4.8.4.2.1), are planned for lower in main channels.

Recommendations: Support implementation of the “High” restoration scenario, take additional measures to ensure implementation of Forest and Fish rules, and support additional restoration in tributary areas.

#### Restorative Flood Protection

This approach states that it aims to restore natural habitat forming processes in the area where treatment takes place. This element supports the Salmon Strategy recommendations for restoring habitat forming processes. If implemented, it could provide tangible habitat benefits and enhance the natural flood storage capacity of the Basin through restoration of riparian function. Further details are needed to determine feasibility.

**Goal 4: “Restore Habitat Access. Replacing dysfunctional culverts in order to allow salmon passage is a high priority throughout the Chehalis Watershed.”**

#### Aquatic Species Habitat Actions

The Aquatic Species Habitat Actions includes plans for replacing barrier culverts, which supports this high priority Lead Entity goal. The “High” scenario is likely to offer significantly greater restoration benefit to fish passage due to the relative scale and geographic range proposed as compared to the “low” restoration scenario. As an additional note, the language in the PEIS should be corrected to include the word “correction” rather than “removal,” which implies abandonment without the addition of a fish-passable structure.

Section 4.8.4.2.1 states that this alternative will address 400 culverts over 100 years of the restoration program. The 2008 inventory of culverts and other barriers (regardless of ownership) in WRIA 22 and 23 includes over 2,000 barriers as identified using WDFW barrier assessment methods. The Salmon Strategy states that the top third are high priority for correction, which is closer to 650.

Recommendation: Aim for a higher number and accelerated rate of barrier corrections to maximize habitat gain needed in the near-term.

### **Goal 5: Restore properly functioning hydrology**

Flood Retention Facilities- FRFA and FRO: Both dam alternatives in the PEIS are projected to change hydrologic regimes in the main stem of the Chehalis River even with careful planning for flow maintenance. The Salmon Strategy calls for reversing historic hydrologic manipulations of the Chehalis River and its floodplain, not increasing them.

The FRFA, if managed appropriately, claims to lead to improvements in water temperature through summer flow augmentation. The Lead Entity plan recommends water storage projects that augment summer low flows. However, those envisioned storage projects mimic natural processes (include wetland restoration, aquifer recharge, and reconnecting off-channel habitat) and would be small and distributed throughout the basin. A dam is not included in the plan as a recommended water storage project or method to address water quality and quantity limiting factors.

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### Aquatic Species Habitat Actions

The actions listed in Section 2.3.3.3 include removing barrier culverts, reconnecting side channels and restoring riparian areas. If implemented, these actions would help improve localized groundwater recharge and natural flow regimes that support a naturalized and properly functioning hydrology.

The literature review in Appendix A of the PEIS states that some forest practices can lead to increased channel forming flows, which can be detrimental to fish habitat in the headwaters of the basin. Peak flows also increase after clear-cuts in the smaller headwater catchments, which can scour fish habitat. Thus, implementing forestry best-practices will be an important part of a strategy to protect aquatic life in the Chehalis. Tributary habitat should not be ignored in a plan to restore aquatic species in the Chehalis.

**Goal 6: “Restore floodplain and stream channel function.”** Projects that restore floodplain function are a major priority in the Chehalis Basin.

### Aquatic Species Habitat Actions

The Lead Entity's Salmon Strategy states that it would like to see at least one major floodplain restoration project proposed annually. The Aquatic Species Habitat Actions (2.3.3.3) include reconnecting oxbows, removing levees and bank armoring, and improving the connection between the river and its floodplain, all of which work to restore floodplain function. Thus, these Habitat Actions actions are supportive of the Salmon Strategy. With concentrated efforts and dedicated funding, the Aquatic Species Habitat Actions would be a huge opportunity to make this goal a reality and make real and needed improvements to habitat conditions in the basin.

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#### Conclusion

The Aquatic Species Habitat Actions align with local goals for salmon recovery in the Chehalis Basin. The "high" restoration scenario would more fully realizes them than the "low" scenario. High level ASHA alternatives will have significant positive impacts on salmon and other aquatic species by restoring the natural processes of this dynamic river system. Restoring these natural processes will reduce the risk of flood damage by buffering high flow events and work in concert with the local-scale damage reductions actions to the mutual benefit of basin residents and salmon. For the health and well-being of our fish populations and communities basin-wide, we strongly encourage investment in these restoration elements.

The combination of elements in Alternatives 2 and 3 could provide solutions for addressing flood damage and for improving conditions for native salmonids in the Chehalis Basin. The Restorative Flood Protection elements in Alternative 4 potentially provides a process-based solution in line with the Salmon Strategy. Its technical and economic details need to be further developed before a decision as to feasibility is possible. Whether fully implemented as the selected "Alternative" or not, the principles of the RFP are worth exploring further.

The information presented about the dam alternatives in the PEIS includes several data gaps, uncertainties and incomplete analyses. These include an inadequate analysis of the impacts of the various dam elements on groundwater, sediment transport, water quality, and cold water release benefits to fish, to name a few. The PEIS does not show sufficient evidence that the combination of elements in Alternative 1 support flood damage reduction without compromising native salmonid runs in the Chehalis Basin. We recommend that you do not support implementation of either proposed Flood Retention Facility. We recommend that the final selection of flood damage reduction alternative, or combination of elements, be based on scientific understanding of all hydrological and biological implications and not compromise fish populations.

The overall intension of the habitat goals of the Chehalis Strategy reflect the goals conveyed in the Lead Entity strategy. From the Salmon Strategy: *“The Chehalis Basin needs to communicate to citizens and legislators statewide that the quality and size of this watershed mandates greater public and private investment for its natural resource management. The importance of this basin to the statewide vision for salmon recovery needs greater emphasis.”* The Chehalis Basin Lead Entity commends you for having the awareness and vision to include the Aquatic Species Habitat Actions across each of the Alternatives recommended.

Thank you for providing us with this opportunity to comment on how the draft PEIS aligns with the Chehalis Basin Lead Entity’s Salmon Strategy and help shape the future of our basin.

Sincerely,

*Kirsten Harma*

Watershed Coordinator

On behalf of the Chehalis Basin Lead Entity Habitat Work Group.

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Saturday, November 12, 2016 9:33 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Annalee  
**Last Name:** Tobey  
**Organization:** Chehalis Community Renaissance Team  
**Address:** 148 Fuller Rd  
Chehalis, Washington 98532  
United States of America  
**Phone:** 360-748-2917  
**Email:** annaleetobey@yahoo.com

**Comments:** On behalf of the Chehalis Community Renaissance Team (CCRT), I would like to share with you our support for Alternative 1. CCRT serves the community carrying out a citywide master plan which includes Chehalis projects and initiatives focused on community building, economic development, quality design, traffic and parking, and downtown development. It is imperative that our businesses and future businesses are provided an infrastructure in which they can succeed. Past floods have been devastating for our business community; many have been unable to recover. Small businesses are still feeling the effects of the 2007 catastrophe. When the rivers rise, we worry. When the rains come fast, we worry. We prepare by moving vehicles out of flood-ridden areas; we move items up high and back up all computer data at an off-site location. After all precautionary measures are taken, we cross our fingers and hope for the best; well-aware that how far and fast the water will spread is largely out of our control. After years and years of studies, for the first time with the Chehalis Basin Strategy, our community has a real chance to minimize the devastation we have come to know. We have hope that change can happen with the implementation of Alternative 1 and believe no other alternatives will adequately help our community. Alternative 2 and Alternative 4 actually have the potential to harm our economy. Chehalis deserves this chance to overcome its image of a “flood community” which greatly impacts our ability to attract new businesses and residents. Our businesses deserve the chance to operate without constant fear of floods. We endorse Alternative 1 as the best option for our community to minimize future flood-related disasters as it offers the greatest reduction in overall flooding impacts. It offers a sensible approach based on years of factual data and scientific research.

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Sunday, October 30, 2016 8:27 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Fred  
**Last Name:** Rakevich  
**Organization:** Citizens for a clean Harbor  
**Address:** 124 Elma McCleary Rd #13  
Elma  
**Phone:** 360-482-1492  
**Email:**

-----Original Message-----

From: Fred Rakevich  
=GRAYS HARBOR CTY==CHEHALIS FLOOD BASIN; PUBLIC comments on dam

Thank you for the info Lisa. I am totally opposed to this proposal to build a dam on the Chehalis !!

**Comments:**

The only people and businesses that are affected by the flooding are those that were allowed to build in the flood zone.

All the rest of us have lived with flooding and regarded it as a natural process. All the people who have lived within the flood zone for decades , built their homes where they were not affected by flooding ! Just imagine that... people with common sense enough to live within the boundaries of a natural process without a dam on the Chehalis.

At a time when G.H. County has a budget deficit , spending this amount of money on an unneeded project would be crazy. Thanks to Commissioner Gordon for opposing this project.

Commissioner Gordon has earned my vote many times over.

There are areas on steep hillsides where there have been too much logging, now combine that with laying stretches of blacktop where it does not allow rainwater to soak into the ground, has had a detrimental affect on runoff .

We need to learn to work with nature not against her. After awhile, if you keep shooting yourself in the foot, in time you will have no foot left and have to take extraordinary measures at restoration.

Thanks again, Fred

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Sunday, November 13, 2016 2:01 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** FOGH-Comments-Chehalis-Basin-EIS.pdf

Comment Form

**First Name:** Arthur

**Last Name:** Grunbaum

**Organization:** FOGH (Friends of Grays Harbor)

**Address:** PO Box 1512  
Westport, Washington 98595  
United States of America

**Phone:** 3606482476

**Email:** rd@fogh.org

**Comments:** Attached please find our comments concerning the Draft Chehalis Basin Strategy EIS.

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/FOGH-Comments-Chehalis-Basin-EIS.pdf>

**File Upload (2):**

**File Upload (3):**

This email was built and sent using [Visual Form Builder](#).

**From:** [Arthur \(R.D.\) Grunbaum](#)  
**To:** [White, Gordon \(ECY\)](#); [Bailey, Chrissy \(ECY\)](#); [info@chhalisbasinstrategy.com](mailto:info@chhalisbasinstrategy.com)  
**Subject:** Draft Chehalis Basin Flood Mitigation Alternatives Report  
**Date:** Sunday, November 13, 2016 2:02:11 PM  
**Attachments:** [FOGH Comments Chehalis Basin EIS.pdf](#)

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Attached please find our comments regarding the above referenced EIS document.

In summary, we believe that the present document is incomplete and cannot be relied upon for good long-term judgement and action. We recommend that further study is required.

Thank you for your consideration of our comments as attached.

R.D.

Arthur (R.D.) Grunbaum  
FOGH (Friends of Grays Harbor)  
P.O. Box 1512, Westport, Washington 98595-1512  
[rd@olearycreek.com](mailto:rd@olearycreek.com) [rd@fogh.org](mailto:rd@fogh.org) <http://www.fogh.org>  
FOGHphone/fax (360) 648-2254  
(360) 648-2476 direct  
Cell Phone (206) 769-1123

FOGH is a broad-based 100% volunteer tax-exempt 501(c)(3) citizens group made up of crabbers, fishers, oyster growers and caring citizens. The mission of FOGH is to foster and promote the economic, biological, and social uniqueness of Washington's estuaries and ocean coastal environments. The goal of FOGH is to protect the natural environment, human health and safety in Grays Harbor and vicinity through science, advocacy, law, activism and empowerment. Your tax-deductible contribution can help FOGH maintain the quality of Central and Southwest Washington's coastal environment.



November 12, 2016

Mr. Gordon White  
Program Manager  
Shorelands & Environmental Assistance Program  
Department of Ecology  
PO Box 47600  
Olympia, Washington 98504-7600

Ms. Chrissy Bailey  
EIS Project Manager  
Re: Draft Chehalis Basin Flood Mitigation Alternatives Report  
Via email: [gordon.white@ecy.wa.gov](mailto:gordon.white@ecy.wa.gov)  
[chr461@ecy.wa.gov](mailto:chr461@ecy.wa.gov)  
[info@chehalisbasinstrategy.com](mailto:info@chehalisbasinstrategy.com)

Dear Reviewers:

Thank you for the opportunity to participate in the outcome recommendations on the Draft Chehalis Basin Strategy Report. We appreciate that this is a very complex project and hope our input will be of assistance in making decisions that will benefit the environment, visitors and residents of the Chehalis Basin Watershed.

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We incorporate by reference comments submitted by the Quinault Indian Nation, the Confederated Tribes of the Chehalis Reservation, Audubon Washington, Grays Harbor Audubon Society, Ron, Kim and Jarred Figlar-Barnes, Jess Helsley, American Rivers and Trout Unlimited.

As we all know, the Chehalis basin drains 2,660 square miles and is broken into two separate WIRAs, the upper 23 and lower 22, which empty into the Grays Harbor Estuary and the Pacific Ocean. It goes without saying that what happens upstream affects the ecology of those waters downstream. As a result the water-quality, water-quantity and timing of flow are of significant importance to the health and economic vitality of the region.

We are concerned that consideration is given to any sort of dam or water retention configuration and strongly oppose that as a solution, partial or in whole. Dams have proven to be destructive to salmon and steelhead runs. As Mark Cedergreen, former CEO of the Westport Charterboat Association and advisor to the Pacific States Marine Fisheries Commission stated, referring to the salmon run on the Columbia River, "...its production today [is] about 10-15 percent of what it was pre-dam." The Chehalis River runs are smaller to begin with and they cannot suffer a decline from their present levels.

The treaty tribes, such as the Quinault Nation depend on the delicate balance that nature provides to sustain their culture and sustenance. The natural flow of waters during flood events depends upon healthy and natural storage of wetlands and riparian areas. The data for "cooling" water temperatures as described in the permanent reservoir scheme is flawed. At most the cool water would be available for about one mile downstream of the dam. Beyond that point the water temperature would increase the further it travels downstream along the agricultural lands that lack adequate riparian zones. Any interruption of this natural process only exacerbates problems elsewhere - usually downstream. We are concerned that historic data from the Washington Department of Fish and Wildlife (WDFW) has not been included as part of the EIS report.

Post Office Box 1512 Westport, Washington 98595-1512 Phone/Fax (360) 648-2254  
<http://fogh.org> [rd@fogh.org](mailto:rd@fogh.org) [linda@foght.org](mailto:linda@foght.org) 501(c)(3) tax-deductible

A comprehensive review of all zoning law and local SMPs (Shoreline Master Programs), exemptions and variances should be reviewed in and around the basin drainage area. Stringent prohibitions should be made to filling or modifying wetlands and riparian areas. Mitigation for projects should NOT be allowed out of area or kind. If a proposed project would jeopardize existing functions and values then it should not go forward.

We note that the basin is described as Forestland making up approximately 84 - 87% of the WRIsAs. Considerable data has been collected and various reports have shown that large trees have a greater water storage capacity relative to water use than smaller trees. We encourage that forest practices need to be enforced and special consideration should be given to the critical areas that lie within those permitted areas. Perhaps the cut cycle of the forest practices should be studied and a calculation used to determine the effects of water storage in trees if the cycle is increased to 80-years from its current level.

We concur that dredging-style practices will negatively impact and dramatically affect flooding in the lower main stem and downstream cities. Actions that speed drainage from the upper WRIA will interfere with and potentially overwhelm the rivers; streams and other tributaries as they begin their own natural drainage system of storm generated waters.

In summary

Problems with dam proposal:

1. Would not protect I-5 under all flood events
2. Highest risk for damage to ecological functions – salmon, steelhead and other species
3. Highest cost of all proposed projects. Cost-benefit not analyzed yet
4. Limited federal funding for new large scale projects like water retention
5. Project design is still in early phase and cost estimates may change significantly
6. Need for significant additional technical and design work if the project moves forward, including for fish passage facilities
7. Process for approval and construction of a dam can take 8–15+ years, with many opportunities for challenge by opponents
8. Damming rivers is the most expensive, most damaging alternative and should not be considered.

Problems with dredging style solutions:

1. Impacts for increased flooding in lower main stem and downstream cities.
2. Significant environmental impacts, damage water quality habitat, damage high quality riparian zones.

Problems with levees:

1. Levees, would increase flooding in other areas.
2. One proposal for levees would only provide I-5 and airport with protection - not a basin-wide solution.
3. Levee proposal for Twin Cities –same concerns as above – increase flooding in other areas; not basin-wide solution.

Alternatives 1, 2, 3, & 4

1. What is the financial relationship between the Chehalis Basin Strategy and the Aberdeen/Hoquiam levees? You imply that if Alternative 1 or 2 is not selected, the levees won't be built - is this true?
2. You do not include complete financial analysis for any of the alternatives.  
“... the benefits and costs of Alternative 1 & 2 do not include the Aberdeen/Hoquiam North Shore Levee, Local Projects, Land Use Management, and Flood Warning System Improvements.” “... the benefits and costs of Alternative 3 & 4 do not include the Aberdeen/Hoquiam North Shore Levee, Local Projects, Land Use Management, and Flood Warning System Improvements.” Therefore, your cost-benefit analyses are incomplete and no decisions can be reached based on this data.
3. The information put forth about the four alternatives is incomplete and confusing. Other alternatives must be considered that would be better than any of the four proposed.



4. Why is there is no analysis of the impact of forest practices on flood events? Poor forest practices can cause or exacerbate flooding and improvements need to be included in these studies.

Alternatives 1 & 2:

1. Damming rivers is the most expensive, most damaging alternative and should not be considered.
2. Where is the data showing Spring Chinook will be saved by the dam and why is it not included in the report? Three-quarters of Spring Chinook spawn below the dam site. How will the dam improve their population?
3. Building any type of dam is in violation of tribal treaties and will negatively impact usual and customary fishing rights.
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5. A dam presents the highest risk for damage to ecological functions – salmon, steelhead, wildlife, invertebrates, etc.

Alternative 4

1. Relocation of 10,300 acres of agriculture and moving farmers is not a viable alternative. Reducing filling of wetlands, building in the flood plains, improving stream flows are more positive land use decisions.

We encourage that before any structural solutions are considered that a long view of the problem and its solutions are instituted for the long-term. Reviewing culverts, blockages and improper practices should augment enforcement of existing wetland, forestry and land-use rules.

At present we can only support a no action alternative and vehemently oppose any retention solutions. We suggest that the EIS is flawed in its considerations and must be supplemented with additional studies that result in “softer” and more reasoned solutions.

Sincerely,



Arthur (R.D.) Grunbaum  
President

Cc: Knoll Lowney





November 12, 2016

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Program Manager  
Shorelands & Environmental Assistance Program  
Department of Ecology  
PO Box 47600  
Olympia, Washington 98504-7600

Ms. Chrissy Bailey  
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Via email: [gordon.white@ecy.wa.gov](mailto:gordon.white@ecy.wa.gov)  
[chr461@ecy.wa.gov](mailto:chr461@ecy.wa.gov)  
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Sincerely,



Arthur (R.D.) Grunbaum  
President

Cc: Knoll Lowney



---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Thursday, October 20, 2016 8:08 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** David  
**Last Name:** Hartz  
**Organization:** Friends of the Chehalis Community Renaissance  
**Address:**  
**Phone:** 360-748-1621  
**Email:** booknbrush@gmail.com

**Comments:** I own a local book store in Chehalis and live here as well and also serve as the volunteer chair of the Friends of the Chehalis Community Renaissance, a registered 501 c 3. The purpose of “Friends” is to secure funds so the Chehalis Community Renaissance Team can design and execute projects to improve our community in myriad ways. The “Friends” have secured and provided well over \$500,000 dollars for projects which have been completed in the past five years. We work to improve the quality of life for residents, improve the attractiveness of the area to enhance existing business activity and to attract new businesses and organizations to our community. We realize however, that until actions are taken which will greatly mitigate flooding, we have a huge negative hanging over all we do. All of us who live here have family and friends who have been severely affected by the floods of the last twenty years, with the 2007 event being a true disaster. Our Board has reviewed the alternatives and strongly endorse Alternative 1 because it seems clearly the approach that can make a major difference. The approach is comprehensive and complicated, but the time has long passed for this problem which has been well documented for over seventy years to be intelligently addressed. We believe Alternative 1 is well-conceived and know how diligently some of our friends and community members have worked to develop a solution based upon the facts and the relevant science.

**File Upload**  
**(1):**

**File Upload**  
**(2):**

**File Upload  
(3):**

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 2:15 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Janet  
**Last Name:** Strong  
**Organization:** Grays harbor Audubon Society  
**Address:** P.O. Box 287  
1102 Mox Chehalis Road  
McCleary, WA 98557  
United States of America  
**Phone:** 3604953950  
**Email:** strongjan@centurytel.net

**Comments:** I am opposed totally to the construction of a dam (water retention device) in the upper Chehalis basin because of its deadly effects on fish (especially young salmonids) and wildlife and their habitats. Several hundred acres of forest would be destroyed in preparing the reservoir site, something a fish ladder could not compensate for. In addition, a dam would not protect all the other subbasins, the South Chehalis, Newaukum, Skookumchuck from flooding due to heavy storms. Also, the hydrologic patterns and seasonal flows would be forever changed by a dam. Benefits to the flat zone at Centralia-Chehalis is limited. Also, fish and amphibian species have been found higher in the basin than previously know. These would be decimated should a dam be built. In the loose soils of the Willappa Hills, a dam would be more quickly filled with sediment, shortening the life of an expensive and habitat destructive dam.

The best protection against flood damage is to bring back the active floodplain and the many oxbows throughout the basin by reconnecting them to the river where they has been cut off from the mainstem. Also, the extensive clearcutting in the Willappa Hills, a highly erodible area of generally unconsolidated material must be addressed through better regulations about logging on steep and unstable slopes. This was major factor in the 2007 floods. Wide riparian zones, if left forested, can do much to absorb excess water and sedimentation.

The Alternative 4, which calls for extensive moving of farms and homes in the floodplain throughout the Chehalis basin, could be modified to recognize that farming can continue in floodplains that could also serve as flood catchment areas in high-water seasons. There is no reason to stop farming in those area, provided that homes, barns and animal safe

areas are moved out of the floodplain. I strongly suggest that this Alternative receive more thoughtful consideration and common sense revisions be made to provide for this dual use of floodplains.

In conclusion, I am strongly opposed to Alternative 1 and supportive of a revised Alternative 4, in conjunction with more stream/habitat protective regulations and enforcement of forest practices in the Willappa Hills. Thank you for the opportunity to make recommendations on this programmatic EIS. Janet Strong.

**File Upload**

**(1):**

**File Upload**

**(2):**

**File Upload**

**(3):**

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Sunday, November 13, 2016 12:31 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** Chehalis-Basin-PEIS-letter.docx

Comment Form

**First Name:** shelley

**Last Name:** spalding

**Organization:** Great Old Broads for Wilderness, Polly Dyer Cascadia Broadband

**Address:** 330 W Satsop Bridge Rd  
Elma, Washington 98541  
United States of America

**Phone:** 3608701739

**Email:** saschar44@gmail.com

**Comments:** Please see attached letter opposing any new dams on the Chehalis River and supporting the Restorative Floodplain alternative.

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/Chehalis-Basin-PEIS-letter.docx>

**File Upload (2):**

**File Upload (3):**

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November 14, 2016

Gordon White

Program Manager, Shorelines and Environmental Assistance

Department of Ecology

PO Box 47600

Olympia, WA 98504-7600

RE: Comments on Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement

Dear Mr. White,

I am writing on behalf of the Polly Dyer Cascadia Broadband, the Washington chapter of the Great Old Broads for Wilderness, to provide comments on the Chehalis Basin Strategy Draft Programmatic EIS. The Great Old Broads for Wilderness is a national grassroots organization that engages and ignites the activism of elders to preserve and protect wilderness, wild lands, and the critters that reside and depend on those lands. The organization is an advocate of well-planned restoration projects when they harmonize with our overall mission.

We are strongly oppose to construction of a new dam on the Chehalis River. We consider both the Flood Retention Only (FRO) and Flood Retention Flow Augmentation (FRFA dam alternatives to be unacceptable for the future of the currently free-flowing Chehalis River. Dams, even with fish passage,

interfere with the natural function of rivers and floodplains upon which salmon, amphibians, and other aquatic-dependent species require.

We do support the Restorative Flood Alternative (RFA). It works with, not against, the natural hydrology of the Chehalis River and its adjacent floodplains. It provides reduction in flood stages arising in more of the basin, including the Newaukum and South Fork of the Chehalis River. It is a truly integrated approach, combining flood damage mitigation with aquatic species habitat restoration in one action. This is the direction of the most innovative approaches to flood management now being developed. It follows on lessons learned in other failed attempts to control rivers and natural processes.

Thank you for the opportunity to identify our opposition to any new dams on the Chehalis River and in support of the Restorative Flood Alternative.

Sincerely,

A handwritten signature in cursive script, appearing to read "Shelley Spalding". The signature is written in black ink on a white background.

Shelley Spalding  
Polly Dyer Cascadia Broadband  
Leader  
330 W Satsop Bridge Road, Elma,  
WA 98541

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Tuesday, October 18, 2016 10:27 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Mickey

**Last Name:** Lofgren

**Organization:** Health and Hope Medical Outreach

**Address:** 1911 Cooks Hill Road  
Centralia, WA 98531  
United States of America

**Phone:** 360 9784547

**Email:** mickey@grassmountainfarm.com

**Comments:** “I agree and endorse Alternative 1 which is a flood retention dam on the upper Chehalis River and an aggressive aquatic species enhancement effort across the basin. “

**File Upload (1):**

**File Upload (2):**

**File Upload (3):**

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**LEWIS COUNTY  
FARM BUREAU**  
*Serving Farmers and Ranchers of Lewis County, WA*



**October 26, 2016**

Chehalis Basin Strategy EIS  
c/o Anchor QEA  
720 Olive Way, Suite 1900  
Seattle, WA 98101

RE: Draft Programmatic Environmental Impact Statement for the Chehalis Basin Strategy

Dear Ms. Bailey:

Lewis County Farm Bureau members were present at the hearing held in the Chehalis Veteran's Museum on October 18 and several gave their personal testimony. At this time, the Board of Directors would like to submit our organization's position into the public record.

We pride ourselves on being stewards of the land and strive to promote conservation and the protection and enhancement of natural resources. We NEED OUR LAND and do all we can to protect it. We are cognizant of the issues of flooding, erosion and natural habitat for wildlife, including aquatic species. We are actively working within the parameters of the Voluntary Stewardship Program (VSP) and feel it is important for local voices to be heard, and listened to. We support an Aquatic Species Restoration Plan that empowers communities and individuals to work within the VSP process and utilize local entities as much as possible. We feel (and it appears the state recognizes) that VSP is "the way to go". It is imperative that VSP be given a chance to prove its worth and be given a chance to show what individuals can do to improve the environment without forced regulations that are actually counter-productive.

We are pleased to see that the Department of Ecology has included the Aquatic Species Restoration Plan (ASRP) in all of the four alternatives being considered. Restoring natural river and floodplain processes will benefit landowners, aquatic species, and the general environment of the Chehalis River Basin. Protecting the Chehalis River Basin can be done in a way that it will support the citizens of our county, as well as other counties, and make for good public relations especially for those most directly impacted by flooding.

The adopted plan must balance the needs of landowners along with the needs of aquatic species. As farmers, we cannot give up all, or large portions, of our land, thus taking it out of production. We support moderate riparian buffers and they are already being implemented on a voluntary basis. We

believe restoration needs to be Basin-wide but the Low Restoration option focuses on the upper and middle portions of the Chehalis river Basin.

Agricultural lands in the flood plain provide floodwater storage, and help control flow velocity, erosion, and flood depth further downstream. Those stored waters help return ground water levels and provide habitat for many species, especially during the winter months when active farming is lower. Covering land with impervious surfaces not only exacerbates the problems of flooding, but it also depletes our food supply. We believe leaving land in the floodplain in agricultural production provides the best of both worlds. It does the most good for the most people, along with the environment, for the least cost. It is important that we avoid development in the flood plain. We need to offer incentives to keep agriculture and conservation efforts strong and preserve riparian buffers and floodplains.

We wish to go on record as opposing Option 4 that proposes to relocate farming activities from the river basin to hillsides. We cannot afford to give up 20,000 acres of productive agricultural land. Plus, there is nowhere to go without moving out of the area, possibly out of the state. That is a loss to our economy that our county cannot afford. Additionally, this alternative is flawed in suggesting agricultural activities can even be carried out on those hillside lands that are naturally suited for forestry activities. In addition to the fact that there would be no water (or water rights) on the hillsides, the hillside soils will not support agriculture, and, in fact, farming on slopes is not only impractical, but would lead to increased destruction of the land and natural resources of the Chehalis river Basin through increased run-off and erosion. We, and our environment, cannot afford to further diminish the natural resources and aquatic species we wish to preserve.

Lewis county Farm Bureau supports protection of natural resources and the promotion of existing viable farmlands. We are in support of Alternative 1 as it protects both farmlands and resources. A Water Retention Dam that will slowly release water throughout the summer, thus improving stream flow and water temperatures, will benefit agriculture and the county, and will do much to sustain aquatic species, especially the salmonoids.

**We wish to go on record as strongly supporting Alternative 1 because it protects and promotes existing viable farmland and our Agricultural Resource Lands under Lewis County Code 17.30.080.**

Respectfully submitted on behalf of the LCFB Board of Directors,



Maureen Harkcom  
President

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Saturday, October 29, 2016 9:39 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** LEE  
**Last Name:** RIENER  
**Organization:** NORTH BEACH ASSOC  
**Address:** 2604 LONETREE  
OCEAN CITY  
United States of America  
**Phone:** 360-289-0998  
**Email:** LOKKIUHH@YAHOO.COM

I am against a dam for this flood project.

The dam costs too much, the dam will hurt fish.

I support Alternative 4, below;

Alternative 4: Restorative Flood Protection

**Comments:** Restorative Flood Protection (Alternative 4) would address flooding in the Chehalis River floodplain as well as in tributary areas of the Chehalis River—the North and South Fork Newaukum rivers, South Fork Chehalis River, Stearns Creek, Bunker Creek, Deep Creek, Lake Creek, Stillman Creek, and Elk Creek— largely through supporting relocation and adaptation of at-risk land uses under existing conditions. Alternative 4 would increase the areal extent and depth of 100-year floods upstream of Newaukum River confluence. Downstream of the Newaukum River confluence, including in the Chehalis-Centralia area, Alternative 4 would reduce flood extents and

depths, but to a lesser degree than Alternative 1. As compared to the No Action Alternative and Alternatives 2 and 3, Alternative 4 would decrease flood extents and depths to a greater extent in the Chehalis River floodplain. Because Alternative 4 would relocate 16,000 acres of land uses, including 8,500 acres of agriculture, upstream of the Newaukum confluence, it would result in greater flood damage reduction compared to the No Action Alternative and other action alternatives (see Appendix C).

Over the long term, Alternative 4 would benefit aquatic species habitat function to a much greater degree compared to the No Action Alternative and other action alternatives; this would be achieved through implementation of the Aquatic Species Habitat Actions and Restorative Flood Protection treatments proposed under Alternative 4. Restorative measures, including placement of engineered wood structures, associated with implementation of this alternative are intended to reduce flood damage by slowing and storing the flow of floodwaters in the floodplain, and would be coordinated with Aquatic Species Habitat Actions. These actions would complement, rather than replace, the actions associated with Aquatic Species Habitat Actions.

I do not support a dam.

I do not support hurting our fish. I support the tribes. They also do not want the dam, this effects treaty rights.

Thank you,

L. Riener

2604 LONETREE DR  
OCEAN CITY, WA

98569

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, October 31, 2016 10:51 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Don  
**Last Name:** Schluter  
**Organization:** N.W.Steelhead and Salmon Conservation Society  
**Address:** 301 Third St. South  
WA Pe Ell 98572  
United States of America  
**Phone:** 360-291-2700  
**Email:** naturalsettings@centurytel.net

**Comments:** We see the Chehalis as one of the last free flowing 2nd longest river and one of the largest watersheds within the basin. It must remain a wild free flowing with no additional impediments within the Main River. The Chehalis is unique within WA Watersheds it's tributaries even with two of them dammed still provide vital habitat to salmonid population, but a few are listed and many are in serious need for restoration. Under no circumstances should the main fork be dammed for obvious reasons, but such actions would destroy populations barely hanging on. The attention should be away from this seriously flawed dam project, which would be built if allowed right ON The Doty fracture line where for generations has been an earthquake area, with undesirable soils, mostly clay which also could occur a similar slide like the OSO WA disasters due to steep slope logging clear cutting practices. The major flooding occurs in the wetlands which have been developed upon in spite of warnings over the years. within Lewis, Thurston and Grays Harbor counties.

We would stop allowing new development within sensitive areas and wetlands. To ease current flooding farmers should be paid or get a tax write off site channeling on their lands during the late fall to early spring when the land is not being used thus helping farmers and relieving a lot of pressure especially I-5 which does need to be addressed to protect commerce and free flowing traffic north and south to keep open the major transportation route.

We the N.W. Steelhead and Salmon Conservation Society support option #3 and believe we can do some natural fixes but not at the loss of our fishery other wildlife and habitat loss. We fully go along with the fixes and views of the tribal nations within the watershed, to protect and preserve them for generations to come.

Sincerely,  
Don Schluter  
President and CEO of N.W.  
Stealhead and Conservation Society

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**File Upload  
(3):**

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**From:** E S PACKARD <espackard@msn.com>  
**Sent:** Monday, November 14, 2016 4:10 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** Sierra Club comments on the Chehalis Basin Strategy DPEIS  
**Attachments:** Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement.docx

Please accept the attached comments from the Washington State Chapter of the Sierra Club.

Elaine Packard



## Washington State Chapter

180 Nickerson St, Ste 202  
Seattle, WA 98109

Phone: (206) 378-0114

Fax: (206) 378-0034

[www.cascade.sierraclub.org](http://www.cascade.sierraclub.org)

November 14, 2016

Gordon White  
Program Manager, Shorelines and Environmental Assistance  
Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

Via email to: [info@chehalisbasinstrategy.com](mailto:info@chehalisbasinstrategy.com)

Dear Mr. White:

Please accept the following comments from the Sierra Club on the Draft Programmatic Environmental Impact Statement (DPEIS) for the Chehalis Basin Strategy.

Overall, the Sierra Club agrees that the Chehalis Basin has been adversely impacted by decades of poor forest, floodplain, and land use management. We support efforts to address these historic and on-going impacts.

**Alternative 1 Governor's Work Group Recommendation:** The Sierra Club opposes both the FRO and FRFA dams on the Chehalis River. A new dam, either temporary or permanent, would disrupt the ecology of the Chehalis River Basin, induce more floodplain development downstream, destroy river recreational opportunities and put fish at greater risk.

**Alternative 2 Structural Flood Protection without a Flood Retention Facility:** While the Sierra Club supports the Local-scale Flood Damage Reduction Actions, we recommend more details on the mechanism to implement this alternative and an economic analysis on the elements to better inform the public and decision-makers. While we also support the concept behind the Aquatic Species Habitat Reduction Actions, we are waiting for more details to be released.

**Alternative 3 Nonstructural Flood Protection:** It is possible that some elements of this alternative can be included as part of Alternative 4, although the Executive Summary states for Alternative 3: “bank stabilization impacts on fish habitat cumulatively could be significant, depending on the project setting.” Therefore, the Sierra Club recommends further analysis on the impacts of this alternative.

**Alternative 4 Restorative Flood Protection:** The Sierra Club strongly supports this alternative as it represents the best opportunity to help restore the Chehalis River Basin without causing additional adverse environmental impacts from dams and levees. In addition, according to the Executive Summary: “because Alternative 4 includes relocation of 16,000 acres of current land uses upstream of the Newaukum confluence, it would result in a greater reduction of flood damage than Alternative 1.”

In conclusion, the Sierra Club favors nonstructural solutions. We recommend that the FPEIS provide better differentiation between Alternatives 3 and 4 and the underlying Local-scale Flood Damage Reduction Actions; more detail to establish the relationship between forest practice and both flooding and summer low flows; better analysis of floodplain land use zoning; and review of why the State Shoreline Management Act and the Federal Coastal Zone Management Act have not been better utilized over the last four decades.

We appreciate the opportunity to comment on the DPEIS.

Elaine Packard  
Chair, Water & Salmon Committee  
Washington State Chapter Sierra Club

---

**From:** bll@sipnsearch.com  
**Sent:** Monday, November 14, 2016 2:19 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** Chehalis Basin Strategy PEIS comment letter  
**Attachments:** Chehalis Basin Strategy.docx

Attached please find a comment letter that the S.W. Washington Fair Commission would like to submit in regards to the Chehalis Basin Strategy Programmatic EIS.

Sincerely,  
Julie Balmelli-Powe  
Chairman, S.W. WA Fair Commision

# *the* Southwest Washington Fair

November 12, 2016

Mr. Gordon White  
Washington State Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504-7600

Chehalis Basin Strategy

Dear Mr. White:

The S.W. Fairgrounds has suffered extensive damage throughout the years due to catastrophic flooding in the Chehalis River basin. After review of the Department of Ecology's Programmatic Environmental Impact Statement, the S.W. WA Fair Commission would like to submit this letter in support of Alternative 1.

Alternative 1 is the only alternative that would reduce the level of flooding in the Twin Cities' area enough to prevent overtopping of the levies that protect the fairgrounds. This alternative is also the only alternative that reduces flood levels throughout the whole basin, providing some protection to our neighbors both upstream and down. It is one of only two alternatives that would protect I-5, and of these two, it is the one that would provide the most benefit to fish and their habitat.

Alternative 2 only benefits I-5 and a few areas that are fortunate enough to lie on the protected side on the walls and levies. Areas outside the walls and levies, including the fairgrounds would suffer greater damage. Any alternative that causes greater damage to anyone should not be an option.

Alternative 3 doesn't do enough to protect businesses, residents, I-5, fish, or the fairgrounds, so this should not be an option.

Alternative 4 would destroy the S.W. W Fair. Not only would it not provide a significant enough drop in flood height to keep water from overtopping the levies that protect the fairgrounds, but the impact that it would have on agriculture in Lewis County would be devastating. Agriculture is heart of the Fair. It is

2555 North National Avenue, Chehalis, WA 98532  
(360) 740-1495 or (360) 740-2656

[www.southwestwashingtonfair.net](http://www.southwestwashingtonfair.net)

[swwfair@lewiscountywa.gov](mailto:swwfair@lewiscountywa.gov)

where young and old alike come to showcase their accomplishments. Whether it is the flowers grown, the produce harvested and canned, the pies baked from the fruit handpicked, the animals raised to sell at market, the horses trained for show and games, or the hay made from the farmers field - the fair is where the community comes together to recognize and appreciate their heritage. Alternative 4 would cause more damage to the S.W.WA Fairgrounds than the option of doing nothing at all.

And lastly, the alternative of doing nothing isn't an option. After all the time and money that has been invested to develop a solution like Alternative 1 that not only reduces flood damage basin wide, but also restores the ecological health of the basin would be senseless.

The S.W. WA Fair Commission would like to compliment the Chehalis River Basin Flood Authority, the Governor's Work Group, Dept. of Ecology, Dept. of Fish and Wildlife, and all who contributed, for their efforts in providing a viable solution to the flooding that has plagued the Chehalis Basin.

Sincerely,

Julie Balmelli-Powe  
Chairman, S.W. WA Fair Commission

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 6:45 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** 20161114181636528.pdf

Comment Form

**First Name:** Thomas D.  
**Last Name:** Bradley  
**Organization:** The Industrial Commission  
**Address:** 1611 N. National Ave.  
Chehalis, WA 98532  
United States of America  
**Phone:** 360-748-7661  
**Email:** broberts.ic@comcast.net  
**Comments:** See attached.  
**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/20161114181636528.pdf>  
**File Upload (2):**  
**File Upload (3):**

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**THE INDUSTRIAL COMMISSION**

P.O. BOX 1501

CHEHALIS, WASHINGTON 98532

PHONE (360) 748-7661

FAX (360) 748-1238

November 14, 2016

Chehalis Basin Strategy EIS

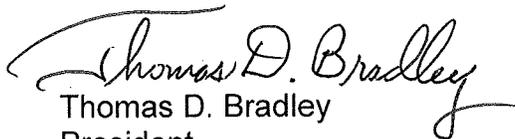
The Board of Directors of our organization wishes to comment on the recently issued EIS outlining options to control future impacts of flooding.

The Industrial Commission was formed in 1956 to develop industrial sites in the Chehalis Industrial Park south of Chehalis. The ability to attract new investment in our community depends on people wanting to live and work here. The history of flooding has been a negative factor in our ability to promote our community as a desirable place to do business. Not only are many potential business sites impacted by flooding or the threat of flooding, but existing residential and business areas have been devastated by past floods.

We have reviewed and discussed the options outlined in the EIS and strongly support Alternative 1 as the best alternative to accomplish the goals of flood control and enhancement of fish habitat in the entire basin. Furthermore, we support a retention dam with a reservoir to hold water in the rainy season and release during the summer months to improve water flow in the river.

The other three alternatives do not do enough to reduce the impact from flooding in the whole basin. Furthermore, alternative 4 is much too expensive and has a negative effect on too many lives. Since participation in the plan is voluntary it could take decades to transition away from family farms in the valley.

Thank you for the opportunity to comment.

  
Thomas D. Bradley  
President

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, October 17, 2016 9:15 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Angela

**Last Name:** French

**Organization:** United Way of Lewis County

**Address:** 450 NW Pacific Ave.  
Chehalis , WA 98532  
United States of America

**Phone:** 3607488100

**Email:**

**Comments:** I agree and endorse Alternative 1 which is a flood retention dam on the upper Chehalis river and an aggressive aquatic species enhancement effort across the basin.

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Tuesday, October 18, 2016 6:39 AM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** Linda

**Last Name:** Lee

**Organization:** United Way of Lewis County

**Address:** 450 NW Pacific Ave  
Chehalis, WA 98532  
United States of America

**Phone:** 360-748-8100

**Email:** finance@lewiscountyuw.com

**Comments:** "I agree and endorse Alternative 1 which is a flood retention dam on the upper Chehalis river and an aggressive aquatic species enhancement effort across the basin. "

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The comments of Guillaume Mauger (University of Washington) have been moved to the Citizen comments, based on the following request for clarification.

**From:** [Guillaume Mauger](#)  
**To:** [Jim Kramer](#); [Bailey, Chrissy \(ECY\)](#)  
**Subject:** clarifications on my comments to the PEIS  
**Date:** Wednesday, December 07, 2016 10:31:20 AM  
**Attachments:** [PEIS\\_Mauger\\_Comments\\_20161207.pdf](#)

---

Hi Jim, Chrissy --

It sounds like I may have caused some confusion in my comments on the PEIS. Sorry for that -- I'm still learning about the process and how best to contribute.

I wanted to know how I could submit a formal clarification, or even a retraction if that is necessary. (Given the choice, I would prefer to retract my comments rather than have them be misconstrued).

In brief, the corrections are as follows:

- (1) The comments were *not* the official UW or CIG position, but my own personal opinions.
- (2) In my comments about Alternative 4 (the restoration alternative), my ambiguous use of the term "feasibility" was meant to denote *political feasibility*, not technical feasibility. In addition, neither the technical nor the political feasibility of this alternative is within my area of expertise.
- (3) My comments about the political feasibility of Alternative 4 might be interpreted to imply that the dam alternatives (FRO and FRFA) are not subject to the same concerns about political feasibility. That was not my intention, and it was a mistake on my part mention one and not the other.

Finally, I just wanted to note that the PEIS clearly states that any of the restoration actions discussed could be implemented in part instead of in full. Setting aside the fact that I do not have a basis for knowing what is and isn't politically feasible in the Chehalis, my general sense is that partial implementation of Alternative 4 could alleviate or even obviate my concerns.

I'm attaching an edited version of my comments with the my previous statement about political feasibility removed. I'd like my official comments on the PEIS to be replaced with these.

Sorry for the trouble.

-Guillaume

--

[@guillaumemauger](mailto:@guillaumemauger)  
[gmauger@uw.edu](mailto:gmauger@uw.edu)  
[mauger.org/guillaume](http://mauger.org/guillaume)  
(206) 685-0317

--

[@CIG UW](#)

--

Pronunciation:

[Guillaume Mager](#)

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Wednesday, November 9, 2016 2:02 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form

Comment Form

**First Name:** William  
**Last Name:** Buchan  
**Organization:** Washington Recreational River Runners  
**Address:** 7302 Jones Avenue NW  
Seattle, WA 98117  
United States of America  
**Phone:** 360-317-7498  
**Email:** bill.b.3613@gmail.com

**Comments:** I am opposed to the damming of this rare stretch of free-flowing river. The reason that the Chehalis hasn't been rafted often is one of access---that's what needs correcting. Also, problems with impoundment on I-5 could be mitigated by better design. Haven't we learned that dams impede salmon, a critical natural resource?

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**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 4:00 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** Comment-letter-on-Chehalis-EIS-11-14.doc

Comment Form

**First Name:** Dan

**Last Name:** Wood

**Organization:** Washington State Dairy Federation

**Address:** PO box 1768  
washington ELma 98541  
United States of America

**Phone:** 360-482-3485

**Email:** Dan@wastatedairy.com

**Comments:** Please see attached

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/Comment-letter-on-Chehalis-EIS-11-14.doc>

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## Washington State Dairy Federation

November 14<sup>th</sup>, 2016

From: Dan Wood, Executive Director

Attn: Chrissy Bailey and Anchor QEA, EIS contractor.

Re: comments on Chehalis Basin Strategy EIS

The Chehalis Basin is an important place for agriculture, including Dairy farming in Washington State. Twenty-nine dairy farms are in the basin at last count. Many of these farms were devastated in the 2007 and again in the 2009 flooding. Several dairy farms never recovered from the 2007 flood. For too long the Chehalis basin has been marred by the occasional extreme flood event with little to no action to reduce the impacts of these floods.

This EIS report offers a thoughtful and carefully considered several options to address solutions. The Dairy Federation offers a sincere thank you for all the people, agencies and organizations that worked to develop this Programmatic EIS.

We see only one option, alternative one, that meets the stated mission of reducing flood damage and improving aquatic species. The EIS Executive Summary states the “ **PURPOSE AND NEED**” as

*In order to make a meaningful difference, the Chehalis Basin Strategy will need to provide a long-term, Basin-wide, integrated approach to substantially reduce damage from major floods and restore degraded aquatic species habitat in the Chehalis Basin.*

And further outlines goals as:

*An integrated Basin-wide strategy should provide the following:*

- *A safer future for people*
- *A healthier, more resilient Chehalis Basin for aquatic species*
- *Reduced social and economic costs associated with floods and degraded aquatic species habitat*

It is only alternative one that will achieve these goals and purposes. This option carefully achieves marked improvements across the basin in flood damage reduction and improving habitat.

The other options simply do not meet the goals and in some cases appear to be contrary to stated objectives. Briefly our concerns are;

No action alternative - We know what this looks like since this option is largely what has happened. The "do nothing" option has costs. The costs are huge in flood damage and declining salmon runs, and the EIS did not even consider the economic cost of losing more businesses, farms due to flooding and the continual or increasing risk of investing in a basin that cannot protect its citizens. We believe it is time to do more than nothing.

Option two would allow potentially a day or two more freeway time and protect some houses and a few businesses, it is not a basin wide solution.

Option three is simply and totally inadequate.

Option four is very troubling. This option is not a basin wide solution. It is horribly expensive and does not meet the goal of reducing damages from flooding. While your report shows it would reduce the cost of damages, because this alternative assumes everyone in the upper basin flood plain would be relocated so those upper basin farms, homes, and small towns would not be there to be harmed. The whole theory is not going to work. It is pure fantasy and a harmful one at that. Farmers will not farm the hillsides. Farm and homes and small cities will not relocate in Lewis county, especially the farms will simply leave and with them the people, the jobs, the kids and the associated economic activity and tax base from those communities in the upper basin.

As mentioned we believe that Alternative one is the only option that meets all the goals, across the whole basin. In alternative one, there are two dams. We find the general opposition to dams disconcerting, there are already two dams in the Chehalis system. The Wynoochee and Skookumchuck tributaries have dams on them and these two tributaries are amongst the most productive rivers for salmon and steelhead. Alternative one option envisions two dam options, a run of the river option shows potentially less impact to fisheries than the retention and release storage structure. However, given at least two extreme heat events that caused fish die off's in the upper basin in the last 8 years, we still cannot help but wonder if the storage and release structure isn't the best of the two.

Thank you again for your hard work and willingness to listen.

Sincerely,

A handwritten signature in black ink that reads "Dan Wood". The signature is written in a cursive, slightly slanted style.

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, October 31, 2016 5:04 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** Comment-by-Grace-Stiller-for-Chehalis-Basin-Strategy.pdf

Comment Form

**First Name:** Grace  
**Last Name:** Stiller  
**Organization:** Weed Warriors. Nature Stewards Program  
**Address:** PO Box 3455  
Renton, wa 98056  
United States of America  
**Phone:** 425.228.7927  
**Email:** gracestiller@comcast.net

**Comments:** To: Chehalis Basin Strategy EIS  
Please make a public record of my statements and consider our comments to the Draft Environmental Impact Statement for the Chehalis Basin Strategy to reduce flood damage and restore aquatic species.  
We support taking action to reduce flood damage and restore aquatic habitats.  
First, thank you to those who proposed and incorporated Alternative #4 in the Draft. #4 is essential in the objectives of reducing flood damage and restoring iconic salmon runs and enhancing aquatic habitat. Alternative #2 with structural protections for I-5 and levees at key flood areas are also needed to mitigate immediate flood effects. Local-scale flood damage reduction actions are also important.  
Alternative #3 does not offer a solution to flooding that communities need now. I don't consider it a viable alternative that addresses immediate needs.  
Alternative #1 does not offer the restorative flood protection needed, is expensive, and is detrimental to the restoration of salmon runs. I stand with the Chehalis Tribe and say we have a responsibility to enhance the native habitat and restore the iconic Salmon runs. #4 enhances the Aquatic Species Habitat Restoration Actions. The goal of this Basin Strategy approach to mitigate flooding damage and restore salmon runs can be met with a combination of #2 and #4. I also support the Aquatic Species Habitat Actions High Scenario, referenced in the Executive Summary, if it could be realistically implemented with landowner support. I understand this is yet to be determined.  
Since Grays Harbor and Lewis Countries are agricultural counties, the overall benefit to the State's economy by providing a water solution for agriculture, especially in dry

periods is important. However, this should not be included as a benefit in Alternative #1 as a long term solution to flooding issues when Restorative Flood Protection #4 are more important, and a dam is counterproductive to restoring aquatic habitats and salmon runs. If Alternative #2 and #4 are implemented, we have a good balanced approach. I do not support Alternative #1 with either the FRO or FRFA, and ask that you do the same, and consider a balanced approach with #2 and #4 combined.

Respectfully,

Grace Stiller,

President and Founder, Weed Warriors, Nature Stewards Program

PO Box 3455 Renton, WA 98056

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<http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/Comment-by-Grace-Stiller-for-Chehalis-Basin-Strategy.pdf>

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**(3):**

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**A WA Charitable 501c3 Non-Profit Organization**

"We Restore Habitats, Inspire Environmental Stewardship and Appreciation of the Beauty in Nature"

To: Chehalis Basin Strategy EIS

Please make a public record of my statements and consider our comments to the Draft Environmental Impact Statement for the Chehalis Basin Strategy to reduce flood damage and restore aquatic species. We support taking action to reduce flood damage and restore aquatic habitats.

First, thank you to those who proposed and incorporated Alternative #4 in the Draft. #4 is essential in the objectives of reducing flood damage and restoring iconic salmon runs and enhancing aquatic habitat. Alternative #2 with structural protections for I-5 and levees at key flood areas are also needed to mitigate immediate flood effects. Local-scale flood damage reduction actions are also important.

Alternative #3 does not offer a solution to flooding that communities need now. I don't consider it a viable alternative that addresses immediate needs.

Alternative #1 does not offer the restorative flood protection needed, is expensive, and is detrimental to the restoration of salmon runs. I stand with the Chehalis Tribe and say we have a responsibility to enhance the native habitat and restore the iconic Salmon runs. #4 enhances the Aquatic Species Habitat Restoration Actions. The goal of this Basin Strategy approach to mitigate flooding damage and restore salmon runs can be met with a combination of #2 and #4. I also support the Aquatic Species Habitat Actions High Scenario, referenced in the Executive Summary, if it could be realistically implemented with landowner support. I understand this is yet to be determined.

Since Grays Harbor and Lewis Counties are agricultural counties, the overall benefit to the State's economy by providing a water solution for agriculture, especially in dry periods is important. However, this should not be included as a benefit in Alternative #1 as a long term solution to flooding issues when Restorative Flood Protection #4 are more important, and a dam is counterproductive to restoring aquatic habitats and salmon runs. If Alternative #2 and #4 are implemented, we have a good balanced approach. I do not support Alternative #1 with either the FRO or FRFA, and ask that you do the same, and consider a balanced approach with #2 and #4 combined.

Respectfully,

A handwritten signature in cursive script that reads "Grace Stiller".

Grace Stiller,

President and Founder, Weed Warriors, Nature Stewards Program

PO Box 3455 Renton, WA 98056

---

**From:** info@chehalisbasinstrategy.com on behalf of Chehalis Basin Strategy  
<info@chehalisbasinstrategy.com>  
**Sent:** Monday, November 14, 2016 4:17 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** EIS Comment Form  
**Attachments:** Wild-Fish-Conservancy-Final-Comments-on-Chehalis-PEIS.pdf

Comment Form

**First Name:** Kurt

**Last Name:** Beardslee

**Organization:** Wild Fish Conservancy

**Address:** 15629 Main Street NE. P.O. Box 402  
Duvall, Washington 98005  
United States of America

**Phone:** 425-788-1167

**Email:** kurt@wildfishconservancy.org

**Comments:** See file Upload (1)

**File Upload (1):** <http://chehalisbasinstrategy.com/wp-content/uploads/2016/11/Wild-Fish-Conservancy-Final-Comments-on-Chehalis-PEIS.pdf>

**File Upload (2):**

**File Upload (3):**

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Wild Fish Conservancy  
N O R T H W E S T

Comments on Chehalis Basin Strategy EIS  
Submitted by Wild Fish Conservancy  
P. O. Box 402  
Duvall, WA 98019  
November 14, 2016

To Whom It May Concern,

WFC appreciates the opportunity to provide comments to assist the Department of Ecology and the Chehalis Basin Workgroup to evaluate the most effective remedies that best address the risks that flooding in the Chehalis River Basin poses to local residents, state infrastructure, native aquatic resources, and tribal cultural resources and values. We hope that Ecology and the Workgroup find these comments helpful. As always, I and my staff at Wild Fish Conservancy are available to address any issues raised in the attached comments and to otherwise help with the development of an ecologically sound and socially responsible strategy for the Chehalis Basin.

Sincerely,

Kurt Beardslee  
Executive Director  
Wild Fish Conservancy

Comments on Chehalis PEIS  
Impacts to native fish  
November 14 2016

General Comments on the PEIS and Public Comment Period.

WFC appreciates the opportunity to provide comments to help DOE to evaluate the most effective remedies that best address the risks that flooding in the Chehalis River Basin poses to local residents, state infrastructure, native aquatic resources, and tribal cultural resources and values.

However, we first of all note that the amount of time provided for public comment on the PEIS (45 days) is insufficient to enable careful review and assessment of the contents not only of the PEIS and Appendices, but associated referenced material. Proper review of such a voluminous set of documents requires at least 90 days. While we are appreciative of the two-week extension to the original thirty-day comment period, the total 45 day comment period nonetheless half of what we feel is necessary to serve the public interest and the presumed interest that DOE has in securing credible and informative comments from the interested public.

In addition we have several concerns with the PEIS itself. First of all, many analyses referenced in the PEIS are either not included, not readily accessible, or not yet completed. For example, it is our understanding that Washington Department of Fish and Wildlife (WDFW) has only recently been contracted to undertake some kind of analysis of the Aquatic Species Habitat Actions. It is also our understanding that the Quinault Tribe has recently contracted an ecosystem services economic analysis of the alternatives outlined in the PEIS, the results of which are not yet available. We agree that such an economic analysis is needed as the sketchy conventional economic analysis described in Appendix E of the PEIS is not capable of addressing the valuation of ecosystem services and several kinds of stakeholder cultural values critical to the PEIS. Issues related to the valuation of ecosystem services must be quantified if a robust determination of the optimal balance of potential actions given budgetary constraints and stakeholder interests and values is to be achieved. However, within this rushed timeframe the

public will have no opportunity to provide comment on either of these documents. The same concerns apply to any other such documents or work products that are expected or in progress but not part of the PEIS for the current comment period. This appears to be a violation of the spirit, and perhaps the law, of SEPA.

Further, the PEIS itself is far too ambiguous and lacking in detail to qualify as a genuine environmental impact statement. There is a notable lack of a fully developed planning framework supported by the many reports commissioned by the Chehalis Basin Strategy team. Of critical importance is the significant lack of a coherent technical analysis of what combined hydrologic and geomorphic processes control flood hazard in the Chehalis Basin and how these mechanisms would be addressed by the suggested Alternatives. The (assumed) objective of the Chehalis Basin Strategy team is to achieve clearly defined project goals with a robust determination of the optimal balance of potential actions given budgetary constraints and stakeholder interests and values. The PEIS fails to reflect such an objective. Not only is no Preferred Alternative identified, but it is not clear that the current list of potential alternatives, either singly or in combinations that may be determined by the Governors Work Group after the public comment period is completed (personal communication, Steve Malloch), have been sufficiently developed to permit the public to determine their full costs, impacts on environmental resources, or effectiveness. The tools and details that are necessary for considering what an optimal mix of possible actions might be are lacking. Rather, the document seems more a working document for which public comments have been requested in order to assist the governor's Chehalis Basin Work Group in identifying how best to proceed in order to identify credible, substantive potential solutions to the concerns associated with flooding threats in the Chehalis basin (i.e., genuine alternatives) and the additional data, research, and analyses that will be required to accomplish this, which are considerable.

As a result of the inadequate length of the comment period, the significant shortcomings and vagaries of the PEIS, and our perspective regarding the proximate purpose of the document, we provide two brief sets of comments. First, we address comments to the members of the Work Group that we think may be helpful for developing a substantive set of genuine alternatives. Second, we describe major inadequacies of the analyses of the flood retention alternatives

(FRFA and FRO), and major inadequacies of the assessment of native salmon and steelhead populations in the Chehalis basin that is critical to a genuine evaluation of the environmental impacts of any of the alternatives.

Developing a framework to evaluate an optimal mix of flood-reduction and aquatic habitat improvement actions.

What is needed first of all is a recognition that a mix of flood reductions actions and aquatic habitat (primarily floodplain reconnection and complexity) actions will be required to reduce flooding risks and flood impacts to both infrastructure and property and to improve the condition of aquatic species and their habitats by beginning to restore riverine habitat-forming processes. Flood risk/impact reduction and restoration of (aquatic) habitat-forming processes are not unrelated nor in conflict in principle. Restoration of habitat-forming processes (primarily reconnection of the river with its floodplain) and flood-reduction actions directed at infrastructure (roads, highways, buildings) in principle are or can be synergistic with one another. For example, raising I-5 on pilings that permit flood water to flow under the road bed, may better route flood water downstream of I-5 and reduce backwater effects upstream, than raising the road bed on fill or otherwise building dikes that retard flood waters and redirect them to other infrastructure. But this will not address flooding impacts upstream or downstream of Chehalis and Centralia. A combination of elevating structures (homes, critter pads) and reconnecting the river channel with the floodplain (to permit over bank flow that spreads floodwaters onto the floodplain and out of the river channel) will be required to ameliorate flood impacts in the low gradient areas where the river has been disconnected from its floodplain. Such river-floodplain reconnection also has benefits for aquatic resources, especially native Chinook, chum and coho salmon and steelhead.

The challenge is to identify the appropriate and responsible mix of such actions, and the best way to temporally sequence such actions given budgetary limitations. This first of all requires identifying an array of basic types of flood reduction actions and locations within the affected parts of the basin where particular types are likely to be appropriate, and similarly for aquatic

habitat actions. Once this has been done, each type of action will then need to be developed in sufficient detail to permit both estimation of flood reduction impacts, impacts to affected aquatic species, and associated costs to be estimated with a previously specified degree of precision. Only after these two steps have been completed will it be possible to evaluate effective combinations of flood reduction and habitat restoration actions that can serve as candidate alternatives for a PEIS.

While there clearly are some elements relevant to the exercise outlined in the forgoing that have been undertaken to some extent, apart from the two flood-retention scenarios, we believe that none have been developed in the requisite detail and some have previously been dismissed from consideration with unclear justification.

There are also data gaps that will likely require some additional research to fill in order to evaluate the effectiveness of particular process-restoration actions when applied to particular locations within the Basin. In particular, there seems to be a serious lack of data regarding bed elevation, bed sediment composition, and sediment supply throughout the length of the mainstem Chehalis, all of which are critical for determining sediment transport impacts of either dam alternative, as well as flood risks and river channel/floodplain response to potential process restoration actions.

In summary, it will require a suite of actions directed at both reducing flood risks to infrastructure and restoring aquatic habitat-forming processes in order to achieve the joint objectives of flood risk/impact reduction and restoration of habitat-forming processes. The FEIS should provide a list of such potential actions, estimates of their costs (in terms of both traditional economic costs and benefits, and ecosystem service valuations), and methods for evaluating combinations of the different kinds of actions. It should provide information on how suites of alternative actions would or might be sequenced temporally, particularly which actions might be undertaken simultaneously, and which require to wait until other actions have been implemented and their effects on flood reduction or process restoration evaluated. Alternatives should therefore be provided as combinations (suites) of spatially-explicit habitat and infrastructure-directed actions. This approach will also require an associated monitoring and adaptive management program which the FEIS must describe in significant detail.

### Concerns with specific alternatives in the PEIS.

Finally, we note the following concerns with some specific features of the PEIS. We reiterate that due to lack of time provided for review of the PEIS these comments are by no means comprehensive of all of the concerns we may have with alternatives generally described in PEIS.

### Fundamental problems with the two dam alternatives: Hydrologic and geomorphological analyses.

In the EIS overview, while the authors of the PEIS document state that Atmospheric Rivers (ARs) are the primary contributor to extreme flooding, they also suggest that there are a number of questions about what mechanisms control the magnitude of extreme floods in the upper Chehalis basin. The probable effect of increased precipitation on river flooding is explicitly addressed throughout the document, but the nature of the ‘many questions’ alluded to in the EIS summary are not developed sufficiently to support the logic behind the choice of alternatives.

For example, Alternative 1 includes a Flood Retention Facility in the upper Chehalis that is presented as the preferred solution to flooding in the Chehalis valley many miles downstream. Given the structure of the channel network upstream of Centralia, one might ask why the proposed Flood Retention facilities should be sited specifically in the relatively small drainage area of the upper Chehalis headwaters. Many other headwater subbasins such as the Newaukum River flow from upland areas and present a flood risk. However, the Chehalis Basin Strategy team commissioned experts to assess the possibility that more frequent and intense ARs would increase the proportion of *runoff* derived from the upper Chehalis specifically as evidence to support the Pe Ell dam site location. A response to the dam siting question is found in a report by the UW Climate Impacts Group (CIG) (Mauger et al., 2016) titled the Effect of Climate Change on the Hydrology of the Chehalis Basin. The CIG projections showed a small decrease in the proportion of rain falling above the proposed dam relative to the Chehalis basin overall, suggesting that the Pe Ell site may not be the best location to meet project objectives. The framing of this question, however, suggests that questions were posed in the hopes of justifying

the dam location rather than exploring the full range of causal mechanisms driving Chehalis flood events.

The Climate section of the PEIS document reports that the CIG model runs for both DHSVM and VIC were consistent with previous studies, generally showing an increase in winter streamflow and flood risk and decreases in streamflow and low flows. However, references to climate change and projections of changing hydrology in the Chehalis River basin in the PEIS do not mention that both DHSVM and VIC showed a wide range of variability among the model projections. The authors of the CIG report attribute this range in part to the fact that neither model was calibrated and therefore neither reflects “the current state of the Chehalis basin hydrology, and its sensitivity to changes in temperature and precipitation”.

### **Sediment availability, channel capacity and flooding**

There is a known relationship between the frequency and intensity of significant precipitation events, sediment initiation and transport, channel conveyance capacity, and the potential for larger and more frequent out-of-bank floods. This critical relationship is not developed in the PEIS or in the supporting documents available for review. The authors of the CIG report state in their background remarks that winter rates of sediment transport, erosion, and landslides are all expected to increase as a result of climate change. They note generally that sediment deposition in a river channel will result in reduced channel capacity and an increased risk of flooding. This statement is supported by others (Stover and Montgomery, 2001) and suggests that the flood impact of a large AR event could be exacerbated by a large sediment supply. Slater et al (2015) found that the amplification of flood hazard due to loss of channel capacity from increased sediment supply is underreported. Flood frequency has generally been assumed to be driven primarily by changes in streamflow. Their results showed that accurately accounting for flood hazard requires assessing streamflow and channel capacity trends separately. However, the PEIS Flood Assessment does not include any analysis of channel capacity trends, a significant problem given the potential for sediment delivery from flow and torrent-type mass movements in the upper Chehalis basin upstream and downstream of the Proposed dam site.

## **Landslide susceptibility and the upper Chehalis basin; implications for sediment delivery / downstream channel capacity**

Two independent studies of the catastrophic December 2007 Chehalis flood event provide valuable information on the amount of sediment delivery from landsliding produced in the upper Chehalis River basin. Research by Sarikhan et al. (2008), included in the PEIS references, and a recent peer-reviewed study by Nelson and Dubé (2015) published in *Earth Surface Processes and Landforms* that was not included, provide valuable information on the potential for large scale sediment delivery the upper Chehalis. Nelson and Dubé “exploited the natural experiment” caused by the December 3, 2007 flood by assessing the effects of “the sediment pulse derived from more than 2500 concurrent landslides” on channel stability and form (Nelson and Dubé, 2015). These landslides, occurring during or immediately after the storm, originated in industrial forest lands primarily in areas of recent forest harvest or along forestry roads. While their 980 km<sup>2</sup> study area included the south fork Chehalis and Stillman creeks, a significant portion of the landslide activity associated with sediment yield occurred in the mainstem Chehalis at and upstream from Pe Ell and the most pronounced sedimentation occurred on the mainstem Chehalis at Pe Ell (Nelson and Dubé, 2015). They note that a large volume of sediment was deposited outside the channel and its migration zone, accumulating across the whole floodplain, thus making plain the connection between landslides, channel aggradation, and flooding.

Sarikhan et al., (2008) also sampled landslides initiated from the December, 2007 storm and noted that thousands of landslides throughout Western Washington were triggered by this event. However, they state the vast majority occurred in the Chehalis River headwaters. Most were debris flows and debris slides or avalanches; once deposited in the Chehalis mainstem, some formed hyperconcentrated flows. Moreover, while not stated in the report, there is an order of magnitude difference between the amount sediment delivered into a channel by mass movements such as debris flows and hyperconcentrated flows and the amount transported by fluvial processes (Dietrich and Dunne, 1978; Brummer and Montgomery, 2006). Normally these types of landslides would rapidly transport much greater volumes of sediment into the mainstem Chehalis. In the Alternative 1 scenario, sediment from upstream landslides won't make it to the

mainstem. It will, however, fill in the reservoir and reduce its capacity or require substantial maintenance, dredging and disposal.

It is now commonly thought that evidence of past landslides, regardless of type, is the best indicator of potential locations, type, size, and travel distance of future landslides (Baum and Kean, 2014; Schulz, 2007). Recent advances in the methods used to identify where landslides have occurred in the past, especially the widespread availability of high resolution LiDAR have aided research on landslide susceptibility and hazard. Although not discussed in the PEIS, Sarikhan et al (2008) suggest that the upper Chehalis may have geologic characteristics that are prone to landsliding – and recent history has born this out. If so, potential improvements in forest practices are unlikely to have an effect on landslide risk in the near future. In another report commissioned by the Chehalis Basin Strategy team, Perry et al. (2016) were asked to conduct a literature review to assess the relationship between forest practices and the frequency and magnitude of high flows, and interpret this review for its applicability to the Chehalis River basin. Based on this review, the authors note generally that extreme flood-inducing flows may or may not be significantly affected by forest practices. They also note that while the bulk of the literature concludes that peak flows increase after forest harvesting, the magnitude of the change is both basin specific and dependent on the chosen statistical method. The lack of clear guidance and limited understanding of this issue does not preclude the fact that the upper Chehalis is prone to massive landsliding.

### **Sediment deposition and the Flood Retention Option Alternative 1**

The PEIS does not analyze of the effects of aggradation on channel conveyance capacity for any of the alternative elements in spite of its importance to flooding. There is no information on the projected sediment yield from the upper basin. This deficiency is particularly disconcerting in the analysis of the Flood Retention Option(s) in Alternative 1. Notably absent are estimates of how much sediment might be delivered to the FRFA reservoir over the lifetime of the structure and what the potential effects of AR-induced sediment deposition on the longevity of the reservoir might be. Sediment is referred to obliquely in Chapter 4 Action Elements: Impacts and Mitigation; a statement in Section 4.2.2.2.2 (pg. 268) asserts that all bedload and 86-93% of suspended sediment from the upper Chehalis headwaters will be retained in the FRFA reservoir.

In an Appendix H technical report on the dam outlet structure, Shannon and Wilson state that 23 landslides were identified in the reservoir basin area of the Flood Facilities, of which 14 were deep seated landslides and suggest that impacts from these slides would be isolated to ‘local reservoir areas’. They also note that landslide risk at the dam outlet facility could be physically contained by removing the slump zone or by providing drainage in hydrologically unstable slopes. However these costs, which are considerable, are not included in the economic analysis.

Another report by HDR states that there would be areas of sediment deposition from the upper Chehalis headwaters that would affect the upper reaches of the 7.6 mi long ‘conservation pool’. However, they do not estimate the effects or extent of this deposition. Neither consultant was tasked with quantifying the total potential sediment yield derived from landslides initiating throughout the upper Chehalis drainage. As a result, it is not possible to accurately assess the implications of dam-related disruption of sediment transport processes on the Chehalis River downstream. This is a critical question; a fundamental purpose of the PEIS is to accurately portray the potential effects the Flood Retention facility on downstream spawning habitat.

### **Dam function and deficiencies in the EIS**

It is not clear whether a critical but unstated function of the dam is to retain sediment from highly mobile mass movements such as debris flows and debris avalanches initiated in the upper headwater basin during extreme precipitation events (ARs). Putting together the different elements of the sediment initiation, transport, and deposition story described above, it would be prudent to assume that there will be an increase in the intensity and frequency of AR events in the future, that feedback between precipitation extremes and landslide initiation are closely coupled, that a significant volume of AR generated landslide debris in the upper Chehalis basin will be transported into the mainstem channel above Pe Ell, and that the resulting sediment slugs are capable of decreasing reservoir pool capacity. This multi-part relationship is not synthesized in the PEIS for Alternative 1 in a manner that would explicitly address whether or not future sediment slugs might affect design dam capacity and function, and if so, how.

There are many documents referenced in the PEIS Alternatives, especially Alternative 1, that were not made readily available to the reviewers.

FRFA Dam alternative: impacts to native fish species.

Based on the information provided in the PEIS, the FRFA alternative would result in substantial loss of spawning and rearing habitat for native steelhead, spring and fall Chinook, coho, and possible also chum salmon. Appendix H (PEIS Volume II) acknowledges the loss of spawning and rearing habitat for Chinook, coho and steelhead. The extent of spawning and rearing habitat in and above the inundation area is considerable, over 50 miles (Appendix H, p. H-33). For example, Appendix H notes that between 2013 and 2015 WDFW spawning surveys noted as many as 2016 winter-run steelhead “have been observed spawning in approximately 52-53 miles in and above the inundation area” (ibid. Also PEIS, v. I, Table 3.4-2, page 144). WDFW’s Score (Salmon conservation reporting engine) website states that the spawning escapement goal for winter-run steelhead for the entire Chehalis basin is 8600. 2000 steelhead would represent 23% of the annual escapement goal. The loss of this number of steelhead due to construction of the FRFA would represent a significant loss of total abundance, distribution, and diversity of the Chehalis basin population. This alone would be expected to increase the vulnerability of the remaining winter-run steelhead populations in the basin as the remaining population would be further restricted to tributaries capable of supporting large (>500) annual spawning populations and by restricting the remaining distribution to a smaller proportion of the basin. This does not take into account the likely loss of sub-populations.

Loss of this habitat combined with the loss of connectivity between populations spawning and rearing in habitats upstream and downstream of the dam site would constitute a significant threat to the viability and resilience of the salmon and steelhead populations in the Chehalis basin. For this reason alone, the FRFA should not have qualified for inclusion in the PEIS and in any case should be eliminated from further consideration.

FRO Dam alternative: impacts to native fish species.

For similar reasons, the FRO alternative should be eliminated from further consideration. The loss of over 5 miles of spawning habitat for spring and fall Chinook, coho, and possibly chum salmon, and steelhead is significant. It would likely result in a significant reduction in the overall diversity as well as the overall abundance of these species in the basin. Given their currently

limited distribution, the impact on the overall abundance and diversity of Spring Chinook would be disproportionately great. Further, the disruption of connectivity is likely to be non-trivial. Impact to the ability of both adult salmon and steelhead to pass upstream of the dam and for juveniles to pass both downstream and upstream is unknown, but likely to be significant given the experience with fish ladders, weirs, and roughened channel structures elsewhere in the Pacific Northwest. For example, the experience of WDFW and Chelan County biologists with the inflatable weir on the lower Chiwawa River in the Wenatchee basin is indicative of the issues that arise with native fish (in this case spring Chinook salmon) refusing to pass these kinds of structures when the weir is down (open to fish passage) and river depths and flows at the site otherwise suitable for upstream passage. The fact that the kind of flow control and low flow (open) structures proposed have never been used elsewhere in the Pacific Northwest increases the risk to native salmon and steelhead of investing in such a structure.

The ability of juvenile Chinook and steelhead to pass upstream and downstream of the dam site may be particularly important for the productivity and hence viability of these populations. Such behavioral flexibility enables juveniles of these species to adapt to changing thermal (water temperature) conditions and to search for and take advantage of feeding opportunities. Loss or impairment of such juvenile migratory behavior can deleteriously affect opportunities for growth that in turn can affect the ability to attain smolt status or can result in attaining smolt status at suboptimal size and condition. The PEIS notes that “[u]p to 39% of the juvenile steelhead and coho salmon of a tagged population were observed actively moving upstream and downstream through areas in the upper Chehalis River that would be disconnected or inundated by the proposed Flood Retention Facility (Winkowski and Zimmerman, in prep). Juvenile steelhead were observed moving over 4 miles in both the upstream and downstream directions.” (PEIS, volume I, Chapter 3, page 143). There is no evidence and little reason to assume that juvenile steelhead, or juvenile coho salmon would be able to migrate freely upstream and downstream of the FRO structure.

Lack of basic information of abundance and diversity of salmon and steelhead populations.

The PEIS provides no detailed information on the abundance and diversity of populations of coho, spring and Fall Chinook, and winter-run and summer-run steelhead in the Chehalis basin downstream of the dam site. No recent time series abundance data, for example, are provided. Some data are available on WDFW's Score website, but none of this information is provided in the PEIS and the public is generally unaware of Score. Information should be provided on all major spawning population and the extent of past and current hatchery fish that are or may be interacting with wild fish on the spawning grounds. This is essential to understanding how potential alternatives directed at flood damage reduction and/or salmonid habitat improvement may affect particular components of wild fish populations. According to data available on the Score website there is little genetic data on wild salmon and steelhead populations in the basin. There has been no genetic analysis of steelhead. There has been no recent (post-2000) genetic analyses of Spring or Fall Chinook using current highly informative microsatellite or SNP markers. The Score site states that genetic sampling of coho in 1994 and 1996 using allozyme markers "show that considerable genetic heterogeneity exists in the upper watershed (David Teel, NOAA Fisheries, pers comm.)". Based on the absence of any data on the Score website there has been no genetic sampling of any chum salmon populations in the Chehalis basin.

Altogether, the absence of recent genetic data for wild Chinook and coho, and no such data whatsoever for steelhead and chum make it difficult to estimate the significance of loss of diversity and population resilience posed by the alternatives. It is, however, clear that either of the two flood retention alternatives pose significant risks of loss of diversity and resilience of steelhead and Chinook. The absence of appropriate population genetics information increases the risk that extirpated populations of either species might constitute significant components of the extant biological diversity of the species in the basin. Loss of either population spawning upstream of the dam site will significantly increase the risk that Chinook (particularly spring Chinook) and steelhead will require protection under the ESA in the near future.

Any proposal to proceed with either flood control alternative will require an evaluation of the increased probability of ESA-listing of Chinook and steelhead as a result of the implementation of the alternatives and an inclusion of the economic costs of listing in any appropriate cost-benefit analysis

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**From:** "Scott Hagen" <[scott4fish@comcast.net](mailto:scott4fish@comcast.net)>

**Subject:** RE: Comments on Chehalis Basin Strategy EIS

**Date:** November 14, 2016 at 4:00:01 PM PST

**To:** "kurt beardslee" <[kurt@wildfishconservancy.org](mailto:kurt@wildfishconservancy.org)>, "Pete Soverel" <[soverel@msn.com](mailto:soverel@msn.com)>, "Jonathan Stumpf" <[jonathanstumpf@gmail.com](mailto:jonathanstumpf@gmail.com)>, "Rich Simms" <[rks57@yahoo.com](mailto:rks57@yahoo.com)>, "Bill Bakke" <[bmbakke@gmail.com](mailto:bmbakke@gmail.com)>, "Conrad Gowell" <[conrad@nativefishsociety.org](mailto:conrad@nativefishsociety.org)>, "Derry Tom" <[tom@nativefishsociety.org](mailto:tom@nativefishsociety.org)>, "Bill Mc Millan" <[monksend@fidalgo.net](mailto:monksend@fidalgo.net)>, "MATTHEW STOECKER" <[mattstoecker@mac.com](mailto:mattstoecker@mac.com)>, "Doug Shadt" <[dcschaad@comcast.net](mailto:dcschaad@comcast.net)>, "Gary Bergquist" <[GaryBergquist@MSN.COM](mailto:GaryBergquist@MSN.COM)>, "Dave Moskowitz" <[moskosalmo@gmail.com](mailto:moskosalmo@gmail.com)>, "Dave McCoy" <[dave@emeraldwateranglers.com](mailto:dave@emeraldwateranglers.com)>, "Jim McRoberts" <[jim4fish@comcast.net](mailto:jim4fish@comcast.net)>, "Dylan Tomine Tomine" <[dtomine@comcast.net](mailto:dtomine@comcast.net)>, "Robert Masonis" <[RMasonis@tu.org](mailto:RMasonis@tu.org)>, "John McMillan" <[jmcmillan@tu.org](mailto:jmcmillan@tu.org)>

Kurt;

You are not kidding about short notice. I had no idea that this was going on until I opened your e-mail this afternoon. I have scanned through your response. I called Gary Bergquist, he has not looked at it yet, but gave me permission to speak for the WFFC. I wish I had been able to have an overview of the EIS, but the WFFC will sign off on the WFC comments.

Best regards,

Scott Hagen

**From:** kurt beardslee [<mailto:kurt@wildfishconservancy.org>]

**Sent:** Monday, November 14, 2016 11:18 AM

**To:** Pete Soverel; Jonathan Stumpf; Rich Simms; Bill Bakke; Conrad Gowell; Derry Tom; Bill Mc Millan; MATTHEW STOECKER; Doug Shadt; Gary Bergquist; Scott Hagen; Dave Moskowitz; Dave McCoy; Jim McRoberts; Dylan Tomine Tomine; Robert Masonis; John McMillan

**Subject:** Comments on Chehalis Basin Strategy EIS

Dear colleagues,

Attached below are our draft Chehalis Basin Strategy EIS comments. Your organization can either sign on to these comments or use all or part of these comments to add to your own organizations comments. If you're going to sign on all I need is the organizations name and authorized individual name sent to me today by 4:00 PM. Sorry for the short notice.

Best regards,

Kurt

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**From:** John (Jack) de Yonge <jdeyonge@gmail.com>  
**Sent:** Sunday, November 13, 2016 12:13 PM  
**To:** info@chehalisbasinstrategy.com  
**Subject:** Chehalis Response  
**Attachments:** WUML Chehalis Letter 1.pdf

Please find attached the response of the Wise Use Movement to the Chehalis flood-control study.



*Naturam Expellas Furca*

*Tamen Usque Recurret*

# WISE USE MOVEMENT

*P.O. Box 17804, Seattle, WA 98127*

November 14, 2016

Chehalis Basin Strategy EIS  
c/o Anchor QEA  
720 Olive Way, Suite 1900  
Seattle, Washington 98101  
<info@chehalisbasinstrategy.com>

RE: Comments on the Chehalis Basin Strategy Draft Programmatic Environmental Impact Statement

The following are the comments of the Wise Use Movement. The Wise Use Movement strongly supports Alternative 4 - relocation and adaptation of at-risk land uses under existing conditions. The Wise Use Movement strongly opposes the use of dams and levees as ill-advised attempts to management flood events.

As far back as 1998, the Executive Office of the President noted that federal programs offered non-structural flood recovery and floodplain management alternatives:

In the past several years, severe flooding problems have drastically affected many parts of the country. In response, the Federal government has been working to improve its floodplain management -- both to reduce the loss of life and property caused by floods, and to restore the natural resource and functions of floodplains. Part of improving floodplain management has involved a shift in focus. Traditional floodplain management often has stressed structural alterations to the natural environment as the best means of protecting property and human lives. In recent years, however, there has been a shift away from this tradition, toward considering non-structural alternatives as effective floodplain management strategies.

The key characteristic of a non-structural approach is that it modifies susceptibility to flooding, as opposed to simply attempting to control flooding through structural methods such as dams, levees and channels.

<https://clinton5.nara.gov/media/pdf/flood.pdf>

It is extremely disturbing to see the Washington Department of Ecology (Ecology) morph into a dam building oriented agency at the expense of its historic environmental protection mission. First in the Columbia Basin, where Ecology wasted millions of dollars studying new and environmentally damaging off-channel dams in the Columbia Basin; second in the Yakima River Basin, where Ecology, together with the Bureau of Reclamation, has proposed building new environmentally damaging and non-economically dams for the benefit of irrigation district, which are not required to implement water conservation or efficiency measures; and third in the Alpine Lakes Wilderness where Ecology, together with Chelan County, is preparing an EIS on constructing new water supply projects.

The Wise Use Movement strongly opposes Ecology's misguided attempts to build more dams as at the expense of non-structural alternatives, water conservation, and taxpayers. In summary, we strongly support Alternative 4.

Sincerely,

*John D. de Yonge*

John D. (Jack) de Yonge  
President