



# The Chehalis Basin Strategy

## A Decade of Collaboration

The Chehalis Basin Strategy was launched in 2010 to meet two of the Basin's greatest challenges—the precipitous decline of salmon and other aquatic species, and the certainty that catastrophic flooding will once again devastate the Basin.

With climate change, disaster is no longer an isolated incident. One-hundred year floods in the Basin will occur more frequently and at higher volumes by the latter part of this century. Salmon, whose existing habitat has degraded to alarming levels, will find the temperature of their waters increasingly uninhabitable.

From the headwaters to the coast and every community in between, we must come together around a set of actions that meets the impacts of climate change head-on.

Based on more than a decade of public engagement, scientific analysis, and collaboration with local leaders, the Chehalis Basin Strategy will employ a combination of natural and engineered solutions at every scale to build resilience across the Basin and implement a new path forward.

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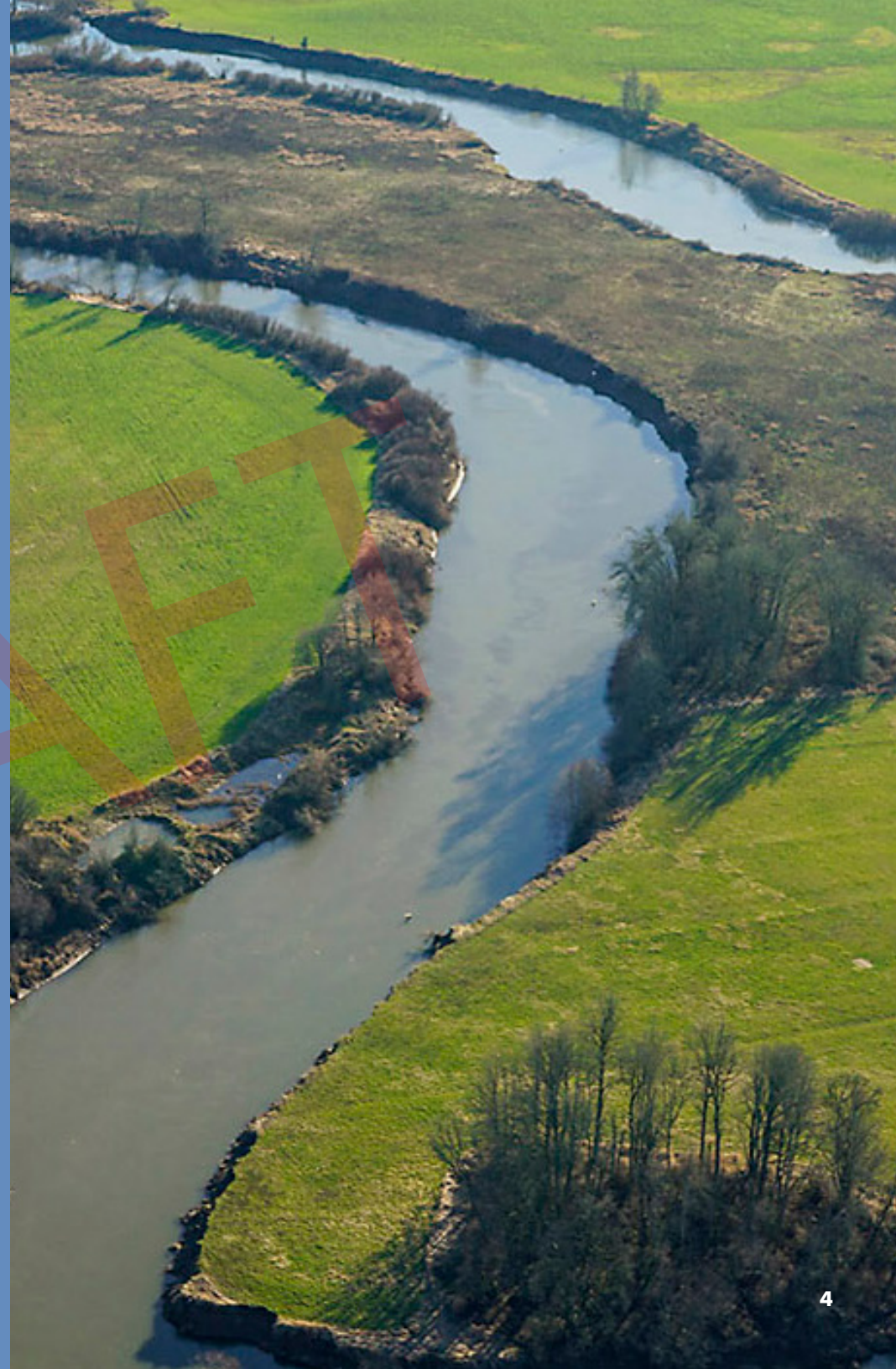
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# What's at Stake

## Distinct Communities and Vast Landscapes

The Basin is a mosaic of distinct communities, including commercial and recreational fishers, farmers, foresters, and many more.

What we call the Chehalis Basin today makes up the ancestral lands of numerous tribes. Two sovereign nations exist within the Basin—the **Confederated Tribes of the Chehalis Reservation**, and the **Quinault Indian Nation** which has treaty rights to fish, hunt and gather in the Chehalis Basin.

The geography of the Basin contains vast landscapes—from the upper reaches of the Chehalis River in forested, rolling hills, to fertile farmland and valleys, to the Pacific coast and marshlands.

The Chehalis River and its tributaries are home to some of the most culturally and ecologically important species in our region, including steelhead, Chinook, coho, and chum salmon. These waters also provide important habitat for lamprey and the largest array of amphibians in the state.





## What's at Stake

### Unique Ecosystems and Nature-Based Economies

#### Ecosystems



**2,700 square mile** watershed  
(second-largest in Washington state)

10 distinct **ecological zones**

125 mile **Chehalis River**

**3,400+** miles of streams

**Seven species** of salmonids and  
numerous **native fish species**

Only remaining river basin in Washington where  
**no salmon species are listed**  
as threatened or endangered

**Most diverse array of  
amphibians** in the state

#### Communities



**Four** urban centers – Aberdeen, Centralia,  
Chehalis, and Hoquiam

**220,000 total residents**  
(estimate for 2025)

Two federally recognized Tribes:  
**the Confederated Tribes of the  
Chehalis Reservation and  
the Quinault Indian Nation**

#### Economy



Washington's **sportfishing capital** –  
Grays Harbor

Robust **commercial fishing** and  
**shellfishing** industry

**\$650 million**  
annual revenue from **agriculture**

**Working lands** in Basin: 87% for forestry,  
8% for agriculture, 3% urban/commercial

# What's at Stake

## I-5 and an International Transportation Corridor

I-5 is the region's key commercial corridor on which commerce, our food supply, and public health and safety depend, from Canada to Mexico.

The imminent threat of major flooding to the I-5 corridor, including the state's main north-south rail line, forged new alliances and brought new sources of creativity and funding to meet the challenges faced by all of the Basin's communities.

The need to protect this critical infrastructure is a key element that will inform the suite of actions that make up the Chehalis Basin Strategy.

**"This stretch of I-5 is the midpoint between Seattle and Portland, connecting two of the West Coast's major population and industrial centers. Floods closed I-5 at Chehalis and Centralia for six days between the 2007 and 2009 floods. The closures and delays alone cost tens of millions of dollars."**

– Washington State Department of Transportation



Climate scientists predict that the next catastrophic flood could close I-5 for days—costing the region \$20 million in economic activity each day.

# Climate Change Demands Bold Action

## Aquatic Species on the Brink

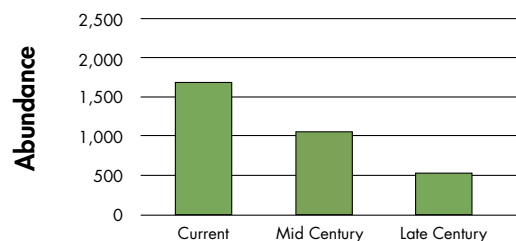
Migrating fish will be subject to increased flooding as climate change intensifies. In some parts of the Basin, this can have a positive impact on aquatic species habitat. However, in the Upper Basin, increased flooding is likely to damage spawning groups and hinder fish reproduction, hurting already struggling fish populations.

Additionally, climate change will bring increased droughts and longer, hot summer temperatures, which will warm the Chehalis River and negatively impact aquatic species.

In the Upper Basin, salmon and steelhead populations are predicted to **drop by 70 percent** from current levels without aggressive protection and restoration. From Rainbow Falls to Crim Creek, spring-run Chinook, Coho, and steelhead **could disappear entirely** by late-century.

Further declines are likely to result in future threatened or endangered species listings, which heightens federal oversight and regulations.

Predicted Spring Chinook Declines



Source: Chehalis Basin Strategy, Aquatic Species Restoration Plan, Phase I, 2019

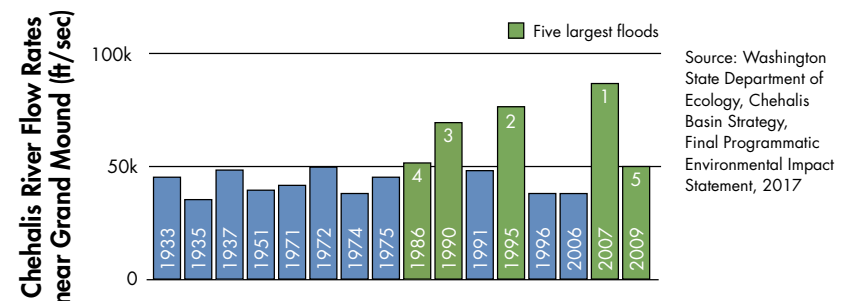
Aquatic species habitat degradation and seasonal flooding have been long-standing issues throughout the Chehalis Basin. Climate change and the impacts of human development are intensifying these issues with unprecedented pace, and we must meet this acceleration with bold, long-term action.

## A Rise in Flooding Disasters

Climate scientists predict that major flooding will happen more frequently, and at a greater scale, with more intense rainfall and sea level rise. It will become increasingly difficult for Basin communities to rebuild between disasters, especially for residents with limited recovery resources.

The floods of 2007 and 2009 **caused nearly one billion dollars in damages**, shut down entire segments of I-5, and put communities' health and safety at risk. While flooding is a natural occurrence throughout the Chehalis Basin, with climate change, catastrophic floods are predicted to increase in number and severity of impact, compromising already at-risk fish and wildlife throughout the Basin

Past Floods



Source: Washington State Department of Ecology, Chehalis Basin Strategy, Final Programmatic Environmental Impact Statement, 2017

# Creating New Paths Forward: The Chehalis Basin Strategy

The Chehalis Basin Strategy was launched shortly after the devastating floods of 2007 and 2009 as a long-term plan designed to both restore aquatic species habitat and reduce flood damage for Basin communities.

The Office of the Chehalis Basin and Chehalis Basin Board were created by the Washington State legislature in 2016. The Office of the Chehalis Basin operates within the Washington State Department of Ecology, and works with the board to oversee the development and implementation of the Chehalis Basin Strategy.

**There is no single, simple solution** to meet the dual goals of improving aquatic species habitat and reducing damage from major flooding disasters. **The Chehalis Basin Strategy must employ multiple reinforcing actions** to meet the needs of our communities and the natural environment.



**"The Chehalis Tribe and Quinault Indian Nation have participated and supported the Strategy since its inception because of its inclusive, collaborative, and science-based approach."**

– Tyson Johnston, Vice-President, Quinault Indian Nation, and Harry Pickernell Sr., Chairman, Confederated Tribes of the Chehalis Reservation, Chehalis Basin Board members

## Reach-Scale Restoration for Aquatic Species

### Strong Support from Residents and Local Leadership

In 2013, scientists and local leaders began charting a course toward broad-scale aquatic species restoration. The result is the **Aquatic Species Restoration Plan (ASRP)**—a detailed roadmap for restoring habitat and protecting ecosystems along the rivers and streams of the Chehalis Basin.

It focuses on taking targeted action where the greatest potential gains for aquatic species exist. Draft one of the ASRP was released in November 2019 and received over 500 public comments and wide support from Basin residents, scientists, and local leadership. Initial funding and implementation for early action projects began in 2020.

The Quinault Indian Nation, Confederated Tribes of the Chehalis Reservation, and the Washington Department of Fish and Wildlife have been key co-authors of the plan.

**“The ambitious scale and generational perspective of the ASRP truly matches the uphill battle we face in rebuilding our sacred salmon runs.”**

— Tyson Johnston, Vice-President, Quinault Indian Nation,  
Chehalis Basin Board member

## Flooding Solutions at Every Scale

From the upper reaches of the Willapa Hills to the Pacific coast and every community in between, people across the Chehalis Basin are coming together to form solutions at every scale.

### Meeting Immediate Safety Needs

Immediately after the floods of 2007 and 2009, the Chehalis Basin Flood Authority improved the Chehalis Basin Flood Warning System for residents and first responders, and developed new evacuation routes ahead of the next disaster.



# Flooding Solutions at Every Scale

## Investing in Local Habitat and Flood Projects

Next, the Chehalis Basin Board worked with local partners and government agencies to invest in small to mid-size, community-driven projects. **Since 2012, over \$75 million has been invested across nearly 100 projects that benefit both people and aquatic species.** These have included:

- Installing 26 farm pads—elevated surfaces that protect livestock and farm equipment from rising water.
- Floodproofing homes, wells, wastewater treatment plants, and other public infrastructure.
- Correcting 54 fish passage barriers, opening or improving access to more than 160 miles of stream habitat for migrating salmon and steelhead.
- Restoring riparian function, improving water quality, and reconnecting one river channel.
- Initiating five reach-scale habitat restoration projects.

## Launching the Community Flood Assistance and Resilience Program

In 2020, the Office of Chehalis Basin launched its Community Flood Assistance and Resilience (CFAR) program. During its initial phase, the program is providing free technical support to residents, communities, and local and tribal governments who are interested in flood protection for their homes, businesses, and property.

Examples of early projects include installing flood vents, providing flood elevation certificates, and advising homeowners on cost-effective options for specific flooding issues.

## Exploring Large-Scale Flood Damage Reduction

While critical local projects continue, analyses show that small to mid-size projects on their own will not be enough to protect against a catastrophic flood, protect I-5, nor improve aquatic species habitat to the degree needed to keep pace with ongoing deterioration.

That's why the Office of Chehalis Basin has continued to research large-scale solutions for both habitat improvement and flood damage reduction.



# Flooding Solutions at Every Scale

Since 2010, working groups have evaluated dozens of ecological and infrastructure projects designed to protect Basin communities against major flood damage, while also supporting salmon and other aquatic species. Ideas have included:

- The Twin Cities project (11 miles of levees)
- Floodwater bypass routes
- Bridge replacements
- I-5 levees and walls
- Raising, widening, or redesigning I-5
- Raising and extending the North Shore Levee in Aberdeen and Hoquiam
- Restorative flood protection
- A flood protection dam on the upper Chehalis River
- Relocating residents and farms

An initial examination of a large-scale restorative flood protection approach in 2018 explored actions that would allow Chehalis River floodwaters to move more naturally over larger, better functioning floodplain areas.

The study concluded that this approach would not significantly slow down or reduce the depth of major flooding downstream in the populated areas of Centralia or Chehalis, nor protect major infrastructure like I-5.

The study found that restoring floodplains in combination with moving people out of harm's way would result in habitat benefits and reduced flood damage. These restorative actions are receiving renewed consideration by the Board.



## Flood Protection Dam

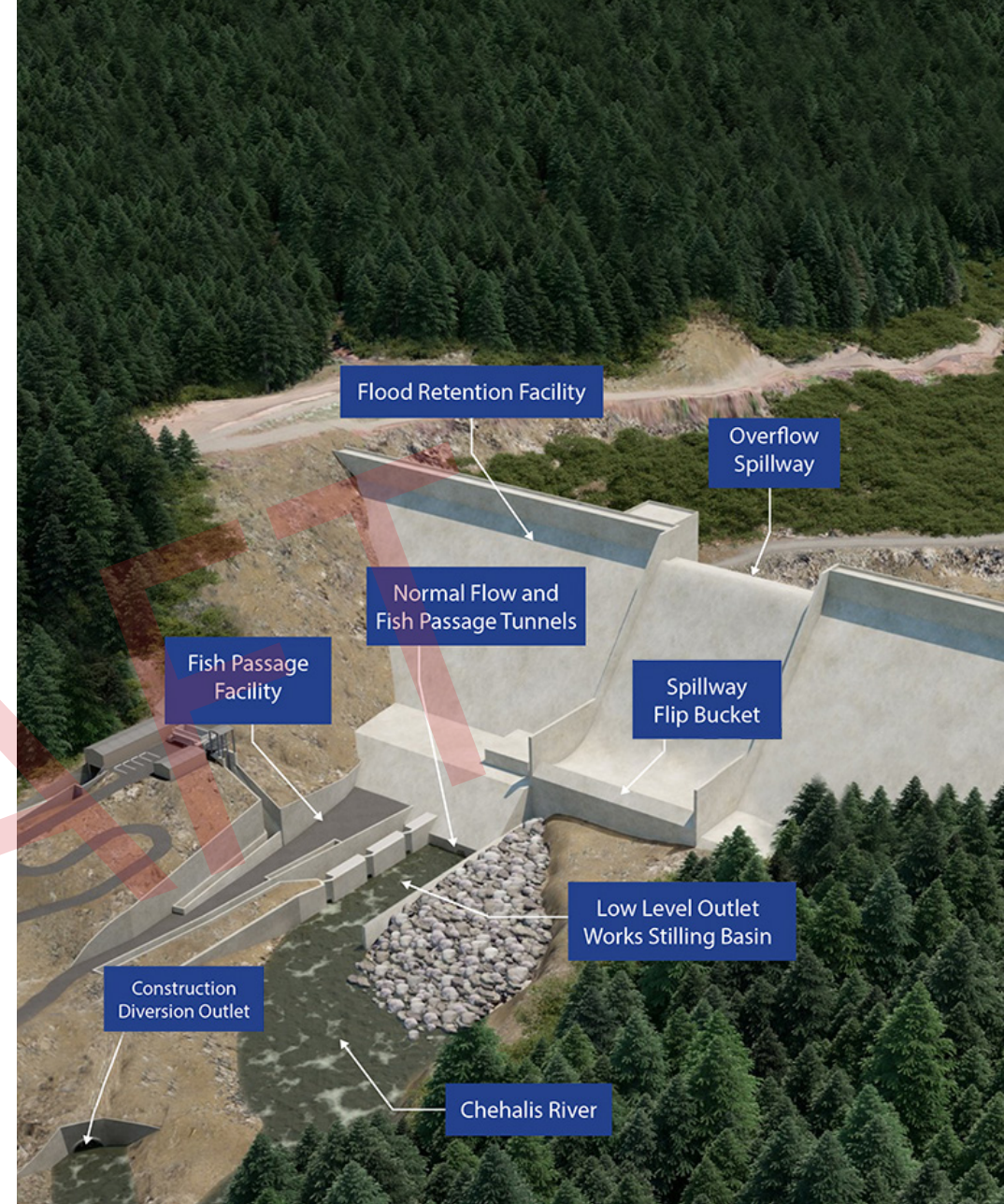
The Chehalis River Basin Flood Control Zone District proposed an emergency flood retention facility. This is not a historic or conventional dam. Engineers spent years researching the latest technology used to manage extreme flooding events while maintaining upstream and downstream fish passage.

The facility would:

- In conjunction with improvements to the existing Chehalis-Centralia airport levee, operate to reduce catastrophic flood damages to families and communities primarily in the rural and populated areas between Pe Ell and Centralia, including I-5.
- Be engaged only during a major or catastrophic flood, predicted at average 7-year intervals, to hold back water and would slowly release water once it is safe to do so.
- Allow the Chehalis River to flow at its normal rate, except during these significant flood events
- Allow fish to pass both upstream and downstream during construction and normal river flow. During flood control operations, fish would be collected and transported around the facility.

The facility would not:

- Address flooding in all parts of the Basin.
- Protect communities from all flooding.
- Be used to stop regular, annual flooding from the Chehalis River.



With or without a dam, climate change threatens the health and existence of aquatic species, especially Spring-chinook, by late-century.

# A Suite of Solutions Takes Shape

**In 2017, the Chehalis Basin Board put forth a suite of potential actions for programmatic evaluation.** The Washington State Department of Ecology conducted a Programmatic Environmental Impact Statement (PEIS), which concluded the following combination of Basin-wide actions could have positive net benefits for both people, and fish and wildlife:

- Flood protection dam on the upper Chehalis River
- Chehalis-Centralia airport levee improvements
- Levee on the Aberdeen-Hoquiam North Shore
- Local flood damage reduction actions and support
- Basin-wide aquatic species habitat actions

## A Closer Look at the Dam

The Board recognized that achieving positive net benefits for both people and aquatic species would depend on more detailed information and long-term commitments to implement actions over decades, and has embarked on a closer look at all elements of the strategy.

Following the PEIS and an early examination of the potential for restorative, “natural” large-scale flood damage reduction, the Chehalis Basin Board approved submitting the flood protection dam for a more detailed environmental review. Since the project would fall within both state and federal

jurisdictions, the Washington State Department of Ecology prepared and released a draft state environmental impact statement (EIS) in February 2020 and the U.S. Army Corps of Engineers prepared a separate federal draft EIS released in September 2020.

Findings from both the state and federal draft environmental reviews can be found on the Chehalis Basin Strategy website. It’s important to note that the two independent reviews differed in their approach, which resulted in some differing conclusions.

- The state draft EIS did not separate the impacts of the project from the ongoing impacts of climate change. The federal draft EIS discussed the impacts of climate change separately from the project.
- The state draft EIS findings are conservative in that they did not consider avoidance, minimization, or mitigation measures that would be employed to address environmental impacts. The federal draft EIS was able to consider some avoidance, minimization and mitigation measures identified by the Flood District.
- The state draft EIS evaluated impacts on aquatic species and habitat at a project-area level. The federal draft EIS evaluated these impacts at both the project area and a Basin-wide level.

Neither review evaluated the project’s net impacts in combination with aquatic species habitat restoration or community-level flood resilience programs.

If the proposed project moves forward into a final environmental review and permitting stage, additional adverse impacts could be identified. The Flood District would be required to propose plans to avoid, minimize, or mitigate negative impacts as requirements of obtaining permits.

## Basin Communities Weigh In

Communities across the Basin have differing views on the project.

**Project proponents**, including the Chehalis River Flood Authority and Chehalis and Centralia City Councils, have highlighted:

- Reduction in the amount of flooding for residents of Chehalis and Centralia.
- Reduction in flood depths in Chehalis, Centralia, and the area from Pe Ell to just upstream of the confluence of the South Fork Chehalis River.
- More than 1,200 families would be protected from catastrophic flooding.
- Elimination of flooding for 43 percent of homes, businesses, schools, and other structures that would otherwise be inundated. The majority of remaining structures could be protected via local projects.
- Elimination of flooding at key locations along I-5 and reduced freeway closure times.

**Project opponents**, including the Confederated Tribes of the Chehalis Reservation, the Quinault Indian Nation, and many environmental organizations, have highlighted:

- Reductions in aquatic species such as spring- and fall-run Chinook salmon, Coho salmon, and steelhead trout.
- Degraded habitat and river and stream water quality, including tree removal at the reservoir site, increased water temperatures up to 5-9°F, and decreased levels of dissolved oxygen.
- Impacts on tribal and cultural resources, including sites of significant spiritual importance.
- Lost recreational opportunities, including 14 miles of kayaking and 13 miles of riverbank fishing.

## Tribes Call for Alternatives to the Dam

Both the Quinault Indian Nation and the Confederated Tribes of the Chehalis Reservation have remained committed to the process of using credible, scientific evaluation to assess whether to include the dam in the Chehalis Basin Strategy.

The Confederated Tribes of the Chehalis Reservation have opposed the Flood District's proposed dam, and the Quinault Indian Nation opposed the project following the state EIS that was released in early 2020. Top concerns included severe impacts on salmon and aquatic species, an inadequate look at other alternatives, an absence of potential mitigation, and damage to spiritually significant sites.

Both Tribes remain committed to finding solutions for both reducing flood damage from major events and improving aquatic species habitat.



# What's Next

2020 continues to be a significant year for the Chehalis Basin Strategy. Major updates and next steps include:

- Governor Inslee requested that the Chehalis Basin Board re-examine previously proposed and potential new Basin-wide flood damage reduction alternatives that do not include a dam.
- The board is set to deliver consensus recommendations by the first quarter of 2021.
- The Chehalis River Basin Flood Control Zone District shared its mitigation assessment report for the proposed flood protection dam with the Board. The Board is currently reviewing this information against the state and federal EIS findings.
- The Office of Chehalis Basin and Chehalis Basin Board have established a structure for working collaboratively with subject matter experts from state and local agencies; the Confederated Tribes of the Chehalis Reservation and the Quinault Indian Nation; conservation districts; and representatives from environmental, agriculture, and environmental justice fields.

The Chehalis Basin Board remains committed to collaborating and securing public input from everyone who experiences flooding in the Basin, and to exploring actions that could accomplish the desired large-scale flood damage reduction outcomes at a lower environmental cost.

## A Suite of Integrated Solutions

This suite of actions will likely include, among many other things, scaling up the new Community Flood Assistance and Resilience (CFAR) program, more localized levees, and changing future development patterns to meet the severity of predicted catastrophic flooding events like those in 2007 and 2009 and anticipated future closures of I-5.

**There is no single, simple solution** to meeting the dual goals of improving aquatic species habitat and reducing flood damage. The Chehalis Basin Strategy must employ multiple reinforcing actions to meet the needs of our communities and the natural environment.

At the end of March 2021, the Chehalis Basin Board will share with the governor, state legislature, and Congress, recommendations for which actions should be implemented as part of the long-term Chehalis Basin Strategy, and which actions may need further review before determining whether they should be implemented.





**Climate change demands that we think and act differently, and our window for doing so is closing fast.**

We have more than a decade of science, planning, collaboration, and projects underway to know what to do to protect our communities and wildlife from further degradation and risk of disaster.

The Chehalis Basin Strategy continues to be the best opportunity to have local leaders advocate for what's best for their residents, fish and wildlife, and the local economy.

For more information on planning assumptions, target outcomes, copies of state and federal environmental reviews and additional reports, contact the Office of Chehalis Basin.

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You can also visit **ChehalisBasinStrategy.com** to sign up for important email updates and learn additional ways to engage.

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