

The Chehalis Basin Strategy

An Integrated Long-Term Plan to Improve Aquatic Species and Reduce Flood Damage

The Office of Chehalis Basin

Washington State Department of Ecology

Olympia, Washington

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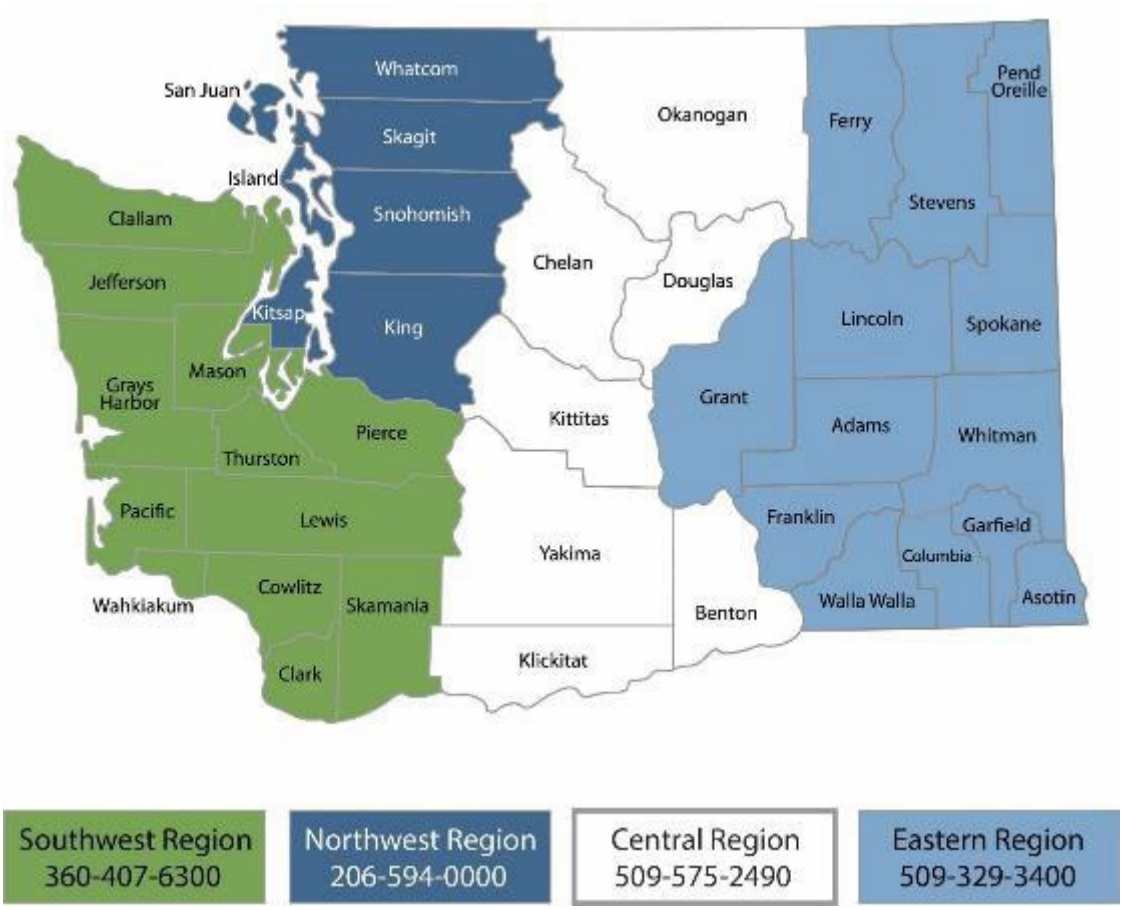

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Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Office of Chehalis Basin
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

June 27, 2023

The Honorable Jay Inslee, Governor
Honorable Members of the Washington State Legislature
Olympia, Washington

RE: The Chehalis Basin Strategy: An Integrated Long-Term Plan for to Improve Aquatic Species and Reduce Flood Damage

The Department of Ecology's Office of Chehalis Basin (OCB) respectfully submits *The Chehalis Basin Strategy: An Integrated Long-Term Plan to Improve Aquatic Species and Reduce Flood Damage*, a report required by HB 1154 of the 2020 legislative session. Per the legislative mandate, OCB is the submitting entity of this report. Members of the Chehalis Basin Board were provided an opportunity to review its contents, however OCB did not seek official Board approval.

This report is now available at this website:
https://apps.ecology.wa.gov/publications/summarypages/2313003.html

If you have any questions regarding this report, or would like more information, please contact me by phone at 360-706-4277 or by email at ocb@ecy.wa.gov.

OCB and its partners are deeply grateful to state legislators and champions who advocate for the Chehalis Basin Strategy and the needs of basin's people, fish, and wildlife, now and in the future.

Sincerely,

Andrea McNamara Doyle
Director
Office of Chehalis Basin

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Statutory Directive

The Office of Chehalis Basin (OCB) submits this report in response to Section 3 of House Bill 1154 from the 2020 legislative session which mandates the following:

"The Office of Chehalis Basin shall submit a report by January 1, 2021, to the legislature that meets the requirement of a finalized strategic plan containing an implementation schedule and quantified measures for evaluating the success of implementation, and the appropriate policy and fiscal committees of the legislature shall, within one hundred twenty days of the receipt, conduct a joint hearing for the purposes of: (1) Receiving a report from the Office of Chehalis Basin; and (2) considering potential funding strategies to achieve the implementation schedule."

OCB provided an interim status report to the Legislature in 2021 summarizing the status of the Chehalis Basin Strategy; however, it didn't submit a complete report at that time because the Chehalis Basin Board (the Board) had not yet finalized all decisions within the integrated long-term strategic plan for the basin. OCB now submits this report to describe the strategic plan for the Chehalis Basin within a phased implementation and development framework, with several key provisional decisions anticipated from the Board between Q3 2024 and Q3 2026 that will finalize its vision of an integrated long-term Chehalis Basin Strategy. As a report of OCB, members of the Board were provided an opportunity to review its contents; however, OCB did not seek official Board approval prior to transmittal to the Governor's Office and Legislature.

Executive Summary

The Chehalis Basin's people and natural ecosystems are urgently at risk, after decades of repeated catastrophic flooding and the precipitous decline of culturally, ecologically, and economically important aquatic species such as steelhead, Chinook, and coho salmon. Over the last decade, efforts to overcome these challenges have been guided by the understanding that these issues — and the science and solutions that can address them — are interrelated and must be approached in an integrated manner. In pursuit of the dual goals of basin-wide flood damage reduction and aquatic species restoration, the Office of Chehalis Basin (OCB) and Chehalis Basin Board (Board) have cultivated an approach that is collaborative, integrated, multi-scaled, backed by science, and focused on smart investments in both immediate actions and long-term planning that factors in the increasing threats posed by climate change.

Tackling the challenges in phased implementation. With so much accomplished and still more to come, the Chehalis Basin Strategy is in the second of three implementation phases:

- Strategy Phase 1: Early Action Implementation and Initial Strategy Development, 2012 through 2021-2023 biennium
- Strategy Phase 2: Mid-Term Action Implementation and Release of the Final Integrated Long-Term Strategy, estimated to be complete between Q3 2024 and Q3 2026
- Strategy Phase 3: Integrated Strategy Full Implementation with Ongoing Monitoring and Adaptive Management, upon completion of Phase 2 and beginning as early as Q4 2024

Significant progress to reduce flood damage and improve aquatic species. Over the last decade (Strategy Phase 1), OCB and the Board, alongside many basin-wide partners, have made significant progress to advance near-term priority actions and long-term planning. Early implementation representing more than 140 projects and $152 million in investments have meaningfully restored aquatic species and reduced flood damage across the region. Alongside these implementation efforts, OCB has also built new programs and collaborative decision-making structures to support the Strategy's goals, created a foundation of science that includes state-of-the-art climate and fish modeling, and initiated exploratory analyses to identify the suite of Strategy options to inform long-term planning decisions.

Upcoming period of critical decision-making. The next several years (Strategy Phase 2) represent a critical period of key provisional decision-making to finalize the vision for the Strategy. During this phase, building on advanced scientific and technical information, exploratory analyses, and evaluations of options, the Board will finalize its vision of the integrated long-term Strategy, including:

- Provisional decisions on its recommended approach to flood damage reduction
- Appropriate long-term investment levels across the various elements of the Strategy
- Prioritization and sequencing of implementation that would maximize benefits
- Final quantitative and qualitative outcomes measures to monitor performance
- What, if any, new governance structures might be required to carry out the Strategy's vision



A flood event in the Chehalis Basin devastating critical infrastructure, businesses, and homes (left). Several Chehalis Basin aquatic species hold cultural, ecological, and economic significance (right).
Photo credit: Office of Chehalis Basin

Adaptive, outcomes-oriented management in full Strategy implementation. Once all major elements of the long-term Strategy are decided on, OCB, the Board, and basin partners will continue to work collaboratively to secure appropriate funding from diverse sources, establish any new governance structures identified as necessary, and scale implementation to meet the Strategy goals within a determined planning horizon (Strategy Phase 3). Implementation and investments will be adaptively managed to optimize success in achieving Strategy goals.

A legacy of collaboration that has leveraged significant federal investments. Despite the complex challenges at hand, collaboration has been at the core of OCB and the Board's efforts. Representing many different and often conflicting interests across the basin, the Board has maintained consensus over several years, charting a path that has been productive, lasting, and in pursuit of an equitable, balanced, and sustainable long-term Strategy to benefit the basin's people, fish, and wildlife.

This legacy of successful collaboration has enabled OCB-funded programs and projects to leverage other non-state resources. As demonstrated by the recent award of $99.5 million in total federal funding to the Aberdeen-Hoquiam Flood Protection Project — including a historically large grant award from the Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) Program — the efforts within the Chehalis Basin are being recognized by decision-makers outside of Washington state. A focus of OCB and the Board now and in the coming years is to diversify its funding portfolio, building on state and local investments in the basin from the last decade.

A model of integrated strategy-building for others across the state. The Chehalis Basin Strategy is an important model for other basins, representing some of the most innovative, collaborative, and forward-looking approaches to complex integrated water resources management across the state. Communities across Washington seeking to collectively design strategies to protect against natural hazards and restore natural systems can look to the Chehalis Basin Strategy as a roadmap for how to do so collaboratively, in a manner that is

driven by local knowledge and experiences, and in an integrated way that draws on the latest science to protect both people and ecosystems.

Continued momentum to ensure a prosperous basin. The Chehalis Basin is the center of some of Washington state's most vibrant communities, important industries, critical transportation corridors, and vital aquatic life. As programs and projects across the Strategy continue to scale and mature in the coming years, ongoing investments will create even more positive benefits for the region and the state. OCB and its partners are deeply grateful to state legislators and champions in the basin who advocate for the Chehalis Basin Strategy and the needs of basin communities and ecosystems, now and in the future. All those involved in these efforts remain focused on improving the cultural, economic, and ecological vitality of the basin for current and future generations of Washingtonians and look forward to when the Strategy's success is fully realized.



From left to right: Jim Kramer (Board facilitator), Andrea McNamara Doyle (OCB Director), Tyson Johnston, Vickie Raines, Steve Malloch, and Rich Doenges (Board members), and Governor Jay Inslee break ground at a future pump station in Aberdeen.
Photo credit: Office of Chehalis Basin

Introduction

Profile of the Chehalis Basin

Covering 2,700 square miles, the Chehalis Basin is the second largest watershed in Washington state. The Chehalis River flows approximately 125 miles, originating in the Willapa Hills of southwest Lewis County and winding north across Thurston County's southwest corner and west across Grays Harbor County before emptying into the Grays Harbor estuary and the Pacific Ocean. Along its length, it draws water from more than 3,400 miles of streams draining three mountain ranges — the Black Hills, the Cascade Foothills, and the southern Olympic Mountains. Major tributaries include the Black, Elk, Hoquiam, Humptulips, Johns, Newaukum, Satsop, Skookumchuck, Wishkah, and Wynoochee rivers. The basin is bounded by the Pacific Ocean to the west, the Deschutes River Basin and the Cascade Foothills to the east, the Olympic Mountains to the north, and the Willapa Hills and Cowlitz River Basin to the south.

The basin's people. What we call the Chehalis Basin today makes up the ancestral lands of numerous Tribes. Two sovereign nations currently 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. Both the Quinault and the Chehalis people are inseparably linked with the watershed, where they have stewarded salmon, steelhead and other species and the habitat upon which they depend since time immemorial.

The basin's total population is approximately 193,000,[1] concentrated in four urban centers: Chehalis and Centralia in the upper basin and Aberdeen and Hoquiam in the lower basin at the mouth of the Chehalis River. New residents are moving into the area, with a total estimated 20% increase in population anticipated by 2040 across the basin's three counties.[2] To this day, the region hosts many unique people and communities, including commercial and recreational fishers, farmers, foresters, and small business owners.



The Chehalis River meandering in fields next to I-5 in Lewis County.
Photo credit: Office of Chehalis Basin

[1] Per Census 2020 data, United States Census Bureau
[2] Per Growth Management Act population projections by county, Washington State Office of Financial Management

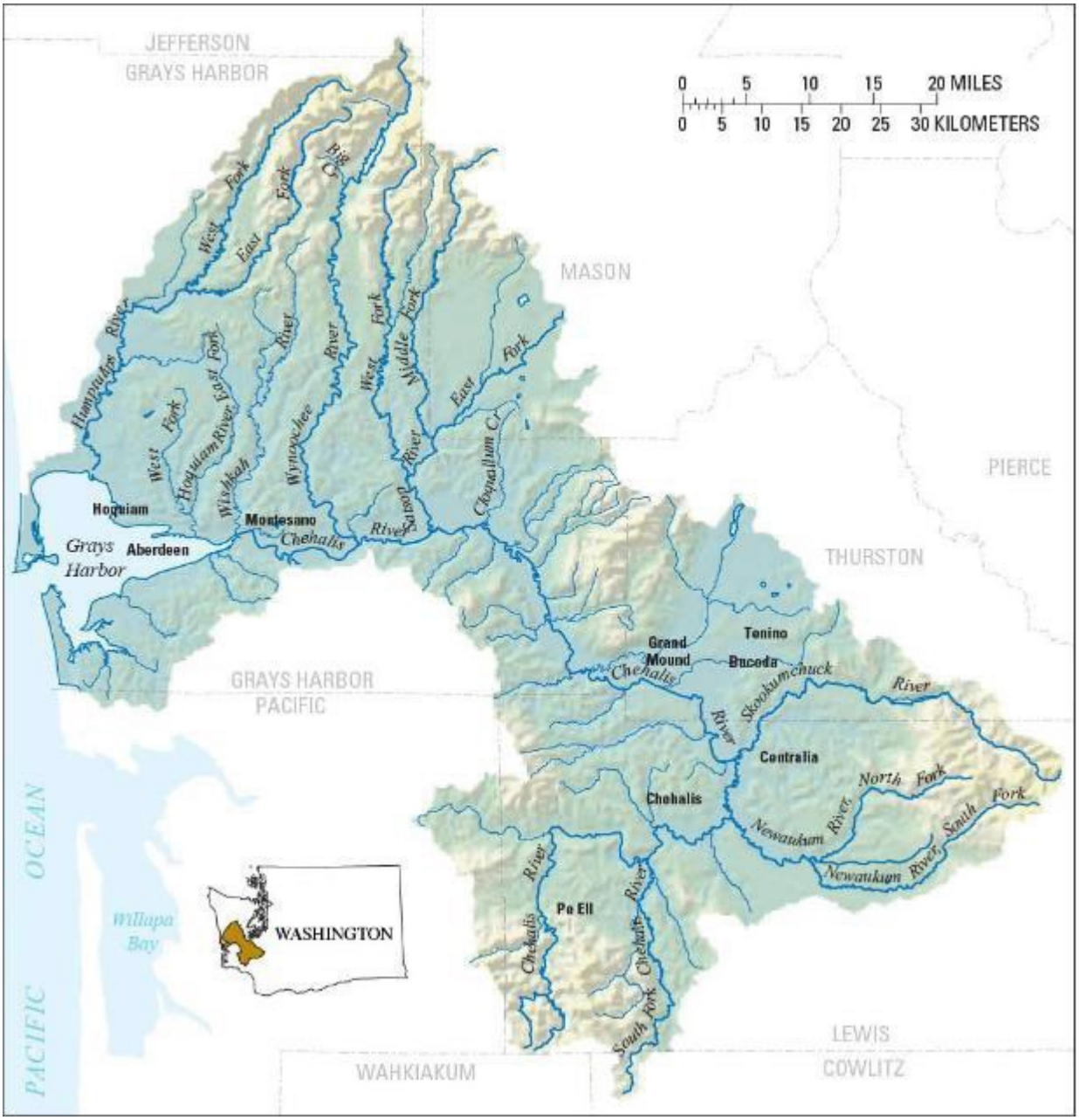

Figure 1. Map of the Chehalis Basin
Source: Office of Chehalis Basin

Local economies and land use. The region is home to several distinct economic communities including farmers, foresters, commercial and recreational fishers, and community-based businesses and services. Highly productive soils along with high annual rainfall support the basin's agriculture industry, responsible for an estimated $650 million in annual revenue (2016 dollars).[3] Excellent tree growth throughout the watershed feeds the local timber industry,

[3] Lewis County Farm Bureau, 2016.

which plays a major role in the basin's economy; as of 2017, Grays Harbor and Lewis counties together represented nearly a quarter of the state's total timber harvest.[4] Wetlands and streams support abundant shellfish and one of the state's most important wild salmon fisheries. Among the basin's working lands, 87% is in forestry, 8% is in agriculture, and 3% is in urban/commercial land uses.[5]

In the upper basin, the river valley is narrow and incised, and has less natural floodplain capacity. Development and economically important transportation corridors, including I-5 and main railroad lines, cut through the middle of the valley and the river's floodplain. Much of the historic development in the basin has occurred in or near the floodplain. The lower basin downstream of Centralia is less populated, except for Aberdeen, Hoquiam, and Cosmopolis along the Grays Harbor estuary, where the river valley is much wider and more predominantly farmland.

Ecological importance. Home to some of the most culturally and ecologically important species in the region, including steelhead, Chinook, coho and chum salmon, the Chehalis Basin is the last remaining stronghold in Washington state for which no salmon species are federally listed as threatened or endangered. These waters also provide important habitats for other vital aquatic species and wildlife such as lamprey and the largest array of amphibians in the state, including the Oregon spotted frog and the western pond turtle, both of which are federally listed as endangered or threatened species. Other endangered species include the marbled murrelet, northern spotted owl, streaked horned lark, and yellow-billed cuckoo.



The Chehalis Basin is home to several culturally and ecologically important aquatic species.
Photo credit: Office of Chehalis Basin, Marc Hayes, and Amy Edwards

[4] *2017 Washington Timber Harvest Report*. Department of Natural Resources, August 2018.
[5] *Chehalis Basin Facts*. Chehalis Basin Partnership, September 2015.

The need for a long-term strategy

For more than 100 years, the region has suffered increasing habitat degradation, catastrophic flood events, and the influences of a changing climate that are exacerbating both. To protect its unique communities and ecosystems, the basin needs an integrated long-term strategy.

Declining aquatic species. Despite being Washington state's only major river drainage system with no salmon species listed as threatened or endangered, salmon runs in the Chehalis Basin have declined precipitously due to a combination of lost and damaged habitat, changing climate conditions that have led to warmer water temperatures and lower summer flows, and area development. Estimates show that habitat for salmon production has been reduced by as much as 80-87% from historic levels and that existing salmon populations are now less than 50% of their historical run sizes. Spring Chinook salmon, culturally significant to the Quinault Indian Nation and the Confederated Tribes of the Chehalis Reservation as the first salmon species to return to the rivers in the spring, are estimated to be just 23% of historical population in the Chehalis Basin.[6,7] Scientists, researchers and technical specialists say if no action is taken in the basin, Chehalis River spring Chinook could be lost entirely in 60 years, in addition to a significant percentage of the economically vital steelhead runs.

Increased catastrophic flooding. Flooding is a normal part of the Chehalis Basin's ecology, and basin communities are practiced at living with flooding. According to accounts since the 1930s, minor flooding generally occurs every two to five years, and major flooding roughly every 10 years. Within the last 40 years, however, six of the largest flood events on record have occurred (in 1986, 1990, 1996, 2007, 2009, and 2022). The two catastrophic floods of 2007 and 2009 were only 14 months apart, destroying homes and farms, killing livestock, and inundating businesses and infrastructure, including I-5, which was closed for several days. Monetary damages from the 2007 flood alone are estimated at $900 million.[8] The most recent major flood event in January 2022 partially closed I-5 for several hours and led to emergency evacuations, displaced residents, and significant economic impacts from property damage and service disruptions.

Intensifying impacts as a result of climate change. Climate scientists predict that the basin will see large increases in the frequency and extent of major flooding by the middle part of this century, with large increases in catastrophic events by the late century.[9] Storm surges and weather cycles of increasing intensity are predicted to continue to impact communities across the basin, such as Chehalis and Centralia, as well as coastal communities such as Aberdeen and Hoquiam, which are increasingly vulnerable to rising sea levels and king tides in addition to river

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[6] PFMC (Pacific Fishery Management Council), 2019. Review of 2018 Ocean Salmon Fisheries: Stock Assessment and Fishery Evaluation Document for the Pacific Coast Salmon Fishery Management Plan. Prepared for the Council and its advisory entities. Portland, Oregon.

[7] Hiss, J.M., and E.E. Knudsen, 1993. Chehalis River Basin Fishery Resources: Status, Trends, and Restoration. U.S. Fish and Wildlife Service Western Washington Fishery Resource Office. Olympia, Washington.

[8] *Draft Chehalis River Basin Flood District Formation Study.* FCS Group, May 2011.

[9] *Modeling climate change conditions for the Chehalis Basin Strategy*. Memo from Larry Karpack (WSE) to Anchor QEA, June 2021.

and inland flooding. Communities can expect millions of dollars in property damage and disrupted transportation routes along I-5 and other key arterials, impacting commerce, public health, and safety. If these predictions are accurate, it will become increasingly difficult for basin communities to rebuild between disasters, especially for residents with limited recovery resources.



Flood devastation and response in the Chehalis Basin.
Photo credit: Office of Chehalis Basin

Alongside the impacts to people, communities, and infrastructure, migrating fish will need to adapt to increased flooding if climate change intensifies as predicted. In some parts of the basin, flooding can have a positive impact on aquatic species habitat. In the upper basin, however, increased flooding is likely to damage spawning grounds and hinder fish reproduction, impairing already-struggling fish populations. Additionally, scientists forecast that climate change will bring increased droughts and longer, hotter summers, which will continue to decrease instream flows and warm the water temperatures of the Chehalis River and its streams and tributaries, with potentially lethal outcomes for aquatic life.

Overview of the Chehalis Basin Strategy

Origins of the Strategy and the key entities advancing it

The Flood Authority and Governor's Work Group. In 2008, in response to the 2007 flood event, Washington Gov. Christine Gregoire created the Chehalis River Basin Flood Authority, a body of 13 jurisdictions that included counties, cities, towns, and the Confederated Tribes of the Chehalis Reservation, all dedicated to funding flood protection projects across the basin. The Flood Authority began that same year by distributing funding with appropriations through the Office of Financial Management.[10,11] Following another devastating flood in 2009, and recognizing the need to simultaneously address both increased flood damages and aquatic species declines together, Gov. Gregoire also created the Chehalis Basin Work Group (known as the Governor's Work Group) in 2012 to develop options for a comprehensive basin-wide plan that would undertake both challenges. The Governor's Work Group developed reports at the end of 2012 and 2014 summarizing what was known about potential projects to create a common base of understanding, managed efforts for early action, and developed elements of a potential long-term strategy to reduce flood damage and restore habitat for aquatic species.

Beginning in 2015, at the request of the Governor's Work Group, the Washington State Department of Ecology (Ecology) began work on a Programmatic Environmental Impact Statement (PEIS) pursuant to the State Environmental Policy Act (SEPA). The purpose of the PEIS was to evaluate potential actions and combinations of actions (i.e., alternatives) for long-term, basin-wide flood damage reduction and aquatic species habitat restoration. Ecology published the draft PEIS in September 2016 and final PEIS in June 2017. The PEIS findings informed the Work Group's budgetary and process recommendations to continue moving the Strategy's development forward.

HB 2856 and the formation of comprehensive long-term planning entities. In 2016, building on the progress of the Work Group and PEIS process, the Washington State Legislature passed House Bill (HB) 2856, creating the Office of Chehalis Basin (OCB) and the Chehalis Basin Board (the Board) to advance a long-term Chehalis Basin Strategy. Both OCB and the Board became operational in July 2017 and have since been the driving force, alongside among many other

[10] 2008 Interlocal Agreement creating the Chehalis Basin Flood Authority.
[11] HB 3375 (2008 Session).

partners, for bringing concerted, collective, strategic action and planning across many different efforts that are working to improve the basin for all people and aquatic species.

Office of Chehalis Basin. Located within Ecology, OCB's charge is to aggressively pursue implementation of an integrated Strategy and administer funding for long-term flood damage reduction and aquatic species restoration in the Chehalis River Basin.[12] Today, OCB administers funding provided by the Washington State Legislature to develop and implement the Chehalis Basin Strategy. OCB advances the Strategy by supporting the Chehalis Basin Board, coordinating with partner networks, and providing transparency and accountability to the public.

The Chehalis Basin Board. The independent Board is tasked with developing and providing long-term oversight of the Chehalis Basin Strategy, as well as developing biennial and supplemental budget recommendations to the governor.[13] Consisting of seven voting members and five ex officio non-voting members, the group is made up of representatives from the two sovereign tribal nations in the Chehalis Basin — the Confederated Tribes of the Chehalis Reservation and the Quinault Indian Nation — as well as community leaders and state agency officials with diverse interests and perspectives who work together to lead the Chehalis Basin Strategy. For the last five years, the Board has met monthly, listening to input from partners and residents to make decisions about the direction for the Strategy, including which projects will be funded (see Table 1 for current [2023] Board members).

State and local partners. Over the past decade, OCB and the Board – and their predecessors - have built a network of dozens of organizations and entities that work in partnership across Chehalis Basin Strategy projects. Core partners include the Chehalis River Basin Flood Authority, conservation districts (including Grays Harbor, Lewis, Mason, and Thurston Conservation Districts), the Chehalis River Basin Flood Control Zone District (FCZD), local land trusts (including Chehalis River Basin Land Trust, Capitol Land Trust, and Forterra), and other implementing organizations such as the Chehalis Basin Lead Entity.

Local governments at the municipal and county level also are key collaborators, in addition to universities and several non-governmental organizations. State agencies and state-wide organizations also participate in planning and project implementation, including the Washington State Conservation Commission, Washington State Recreation and Conservation Office, Washington State Department of Fish and Wildlife, Washington State Department of Natural Resources, Washington State Department of Transportation, and Washington State Department of Commerce.

[12] RCW 43.21A.730.
[13] RCW 43.21A.731.

Table 1. Current (2023) members of the Chehalis Basin Board

Voting Members, *appointed by*	**Ex Officio Members**
Vickie Raines, Chair *Chehalis River Basin Flood Authority*	Michael Garrity *Department of Fish and Wildlife*
Edna Fund *Chehalis River Basin Flood Authority*	Alex Smith *Department of Natural Resources*
Jay Gordon *Chehalis River Basin Flood Authority*	Mark Gaines *Department of Transportation*
Tyson Johnston *Quinault Indian Nation*	Josh Giuntoli *Washington State Conservation Commission*
Dustin Klatush *Confederated Tribes of the Chehalis Reservation*	Rich Doenges *Washington Department of Ecology*
Glen Connelly (Alternate Member) *Confederated Tribes of the Chehalis Reservation*	
J. Vander Stoep *Office of the Governor*	
Steve Malloch *Office of the Governor*	



Top, from left to right: Josh Giuntoli, Steve Malloch, Michael Garrity, Rich Doenges Bottom: Glen Connelly, Tyson Johnston, Vickie Raines, Edna Fund, J. Vander Stoep. Not pictured: Jay Gordon, Alex Smith, Mark Gaines

Photo Credit: Office of Chehalis Basin

Strategy goals and guiding principles

Per RCW 43.21A.732, the Chehalis Basin Strategy is guided by two goals:[14]

1. Improving aquatic species habitat
2. Reducing flood damage for basin communities

In pursuit of the dual goals, OCB and the Board have cultivated an approach that is collaborative, integrated, multi-scaled, backed by science, and focuses on smart investments in both immediate actions and long-term planning.

- **Collaborative.** The Strategy is a collaboration across a diverse spectrum of community leaders, local, state, and tribal government officials, residents, scientists, business owners, and nonprofit organizations who are committed to the Strategy's dual goals. In addition to OCB and the Board's formal governance structure, Strategy partners connect with and honor the diverse perspectives and values from communities across the region through basin-wide outreach and engagement.
- **Integrated.** The challenges of declining aquatic species and increasing flood damage — and the science and solutions that can address them — are interrelated; as such, the Strategy employs an integrated approach whenever possible, both in implementation coordination and in leveraging funding.
- **Multi-scaled.** The Strategy works at several scales to create lasting change throughout the basin – at the resident- and community-level, as well as in using a more holistic view across the full basin to ensure the most strategic investments.
- **Backed by science**. The Strategy's programs and projects are backed by science to make sure investments are used wisely and will have the greatest impact. Projects and planning are informed by up-to-date, authoritative climate change data and projections about future flood and habitat risk in the Chehalis Basin.
- **Driven by smart investments.** The Strategy and its partners make smart and innovative investments by strategically coordinating efforts across the basin, thereby leveraging greater impact.
- **Immediate and long-term.** Since the issues of salmon decline and rising flooding dangers are urgent and will intensify over time, the Strategy also is characterized by both immediate action and long-term planning following a phased implementation approach, as further described below.

The Board is driven by a desire to create an equitable, balanced, and sustainable long-term Strategy that supports a net improvement for all those who live, work, recreate, and have an interest in the Chehalis Basin while simultaneously avoiding, minimizing, and mitigating any associated negative consequences.

[14] RCW 43.21A.732.

An overarching question to guide Strategy development

In 2023, Chehalis Basin Board members drafted an overarching question to guide their process as they consider how to operationalize the Strategy's goals:

"Recognizing the clear urgency to take effective, integrated actions that are timely, practical, politically viable, and cost-effective;

How can we work with and incentivize basin stakeholders to voluntarily support protecting and restoring natural habitat and native aquatic species, support self-sustaining, abundant, harvestable fish populations, and protect cultural resources in the face of a changing climate and population growth;

While at the same time, reducing basin-wide flood damage to human infrastructure and aquatic habitat before the next catastrophic event and in the face of an increasing threat of flooding due to a changing climate;

Thereby creating an equitable, balanced, and sustainable long-term strategy that supports a net improvement for all those who live, work, recreate, and have an interest in the Chehalis Basin while simultaneously avoiding, minimizing, and mitigating any associated negative consequences?"

Phased implementation

The Strategy is in the middle of three implementation phases as defined by major milestones. Projects and programs at all levels have been funded for several years and have made significant progress on both flood and aquatic species goals. Alongside the investments and progress already underway, OCB, the Board, and basin partners are continuing to further analyze options for addressing catastrophic flood damage and to develop and refine additional programs to scale implementation over the coming years.

Outlining the Strategy's phases allows consideration of what has already been achieved in project implementation, programmatic design, and long-term Strategy development (Phase 1); what further implementation, programmatic design, and decision-making from the Board is expected in the coming years to finalize the Strategy (Phase 2); and how the Strategy is anticipated to function and adapt once all elements are fully underway and implementation has been scaled for success to meaningfully achieve the Strategy's goals (Phase 3).

- **Strategy Phase 1: Early Action Implementation and Initial Strategy Development (2012 through 2021-2023 biennium).** Since the formation of the Governor's Work Group in 2012, OCB, the Board, and basin partners have made significant on-the-ground project investments to meaningfully restore aquatic species and reduce flood damage across the region through pilot projects that address near-term priorities, built new programs and collaborative decision-making structures to support the Strategy's goals, created a foundation of science that includes state-of-the-art climate and fish modeling, and initiated exploratory analyses to identify the suite of Strategy options to inform long-term planning decisions. During this initial phase, partners developed preliminary qualitative and quantitative outcomes measures to monitor and adapt implementation

of restoration actions and to guide the development of flood damage reduction actions under evaluation.

- **Strategy Phase 2: Mid-Term Action Implementation and Release of the Final Integrated Long-Term Strategy (expected to be complete between Q3 2024 and Q3 2026).** This phase represents an important period of the Board's decision-making and scaled project implementation. During this phase, building on advanced scientific and technical information, exploratory analyses, and evaluations of options, the Board will finalize its vision of the integrated long-term Strategy, including provisional decisions on its recommended approach to flood damage reduction, appropriate long-term investment levels across the Strategy elements, what prioritization and sequencing of implementation would maximize benefits, final quantitative and qualitative outcomes measures to monitor performance, and what, if any, new governance structures might be required to carry out the Strategy's vision. OCB and the Board also will identify potential funding sources from a more diverse portfolio to meet the recommended levels of investment. This progress will occur alongside additional program development for even greater scales of project implementation in Phase 3.
- **Strategy Phase 3: Integrated Long-Term Strategy Full Implementation with Ongoing Monitoring and Adaptive Management (beginning upon completion of Phase 2, as early as Q4 2024).** Once all major elements of the long-term Strategy are decided on, OCB, the Board, and basin partners will work collaboratively to secure appropriate funding from diverse sources, establish any new governance structures identified as necessary in Phase 2, and scale implementation to meet the Strategy goals within a determined planning horizon. Performance will be monitored and periodically reported on using the finalized outcomes measures, and implementation and investments will be adaptively managed to optimize success in achieving Strategy goals. This period of the Strategy is likely to be phased itself, to make sure implementation is paced and sequenced to maximize and balance benefits to the basin.

Significant progress towards protecting people and aquatic life

Since 2012, state and local partners have invested nearly $152 million to fund more than 140 projects that benefit both people and aquatic life. After a decade of science-based research and collaboration to build a strong foundation, the number of Chehalis Basin Strategy projects has ramped up significantly in recent years and will continue to grow. While several aspects of the long-term Strategy will be decided on in the coming years, the Chehalis Basin is now more prepared than ever to protect against flood damage and protect aquatic species in the face of a changing climate and decades of habitat degradation.

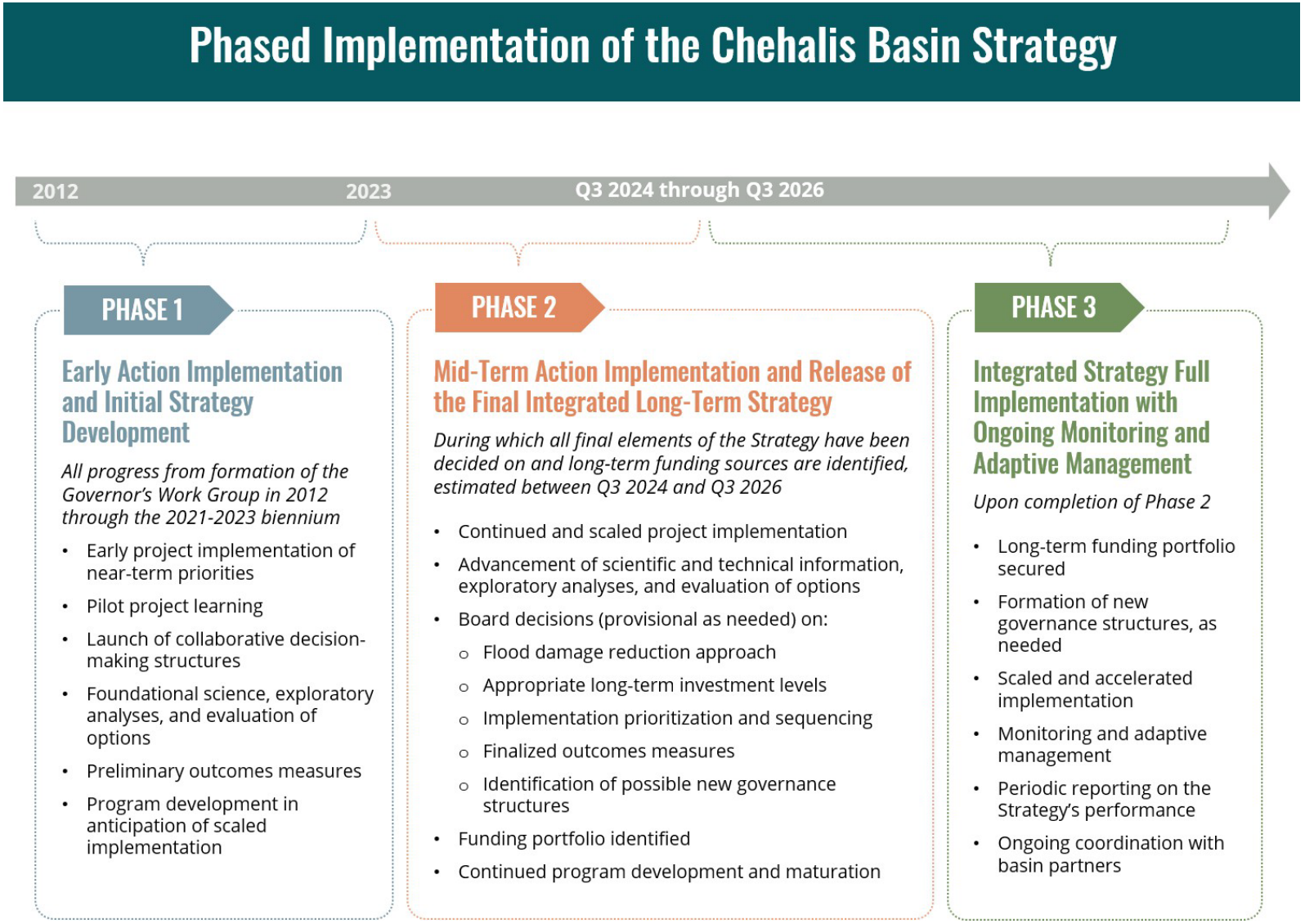

Figure 2. Phased Implementation of the Chehalis Basin Strategy
Source: Office of Chehalis Basin

The specific characteristics, accomplishments, and anticipated milestones for these phases — either already achieved or anticipated in the future — are further described in the remainder of this report.

Elements of the Strategy

The significant breadth of programs and workstreams defining the Chehalis Basin Strategy can be categorized by the goals they serve: aquatic species restoration and flood damage reduction. A third category, dual-purposed programs and projects, represents the efforts that are cross-cutting in nature and serve both Strategy goals. Note that even those programs and projects (i.e., Strategy elements) categorized as serving one of the goals do in fact benefit both to varying degrees.

For each Strategy element described below, additional project background, accomplishments to date (Phase 1), anticipated milestones (Phase 2), 2023-2025 spending plan activities, and project contact information are included in phased implementation information about each of the respective projects and programs.

Potential options for inclusion in the Integrated Long-term Strategy. The suite of projects and programs included in the final Strategy will likely be a combination of these elements.

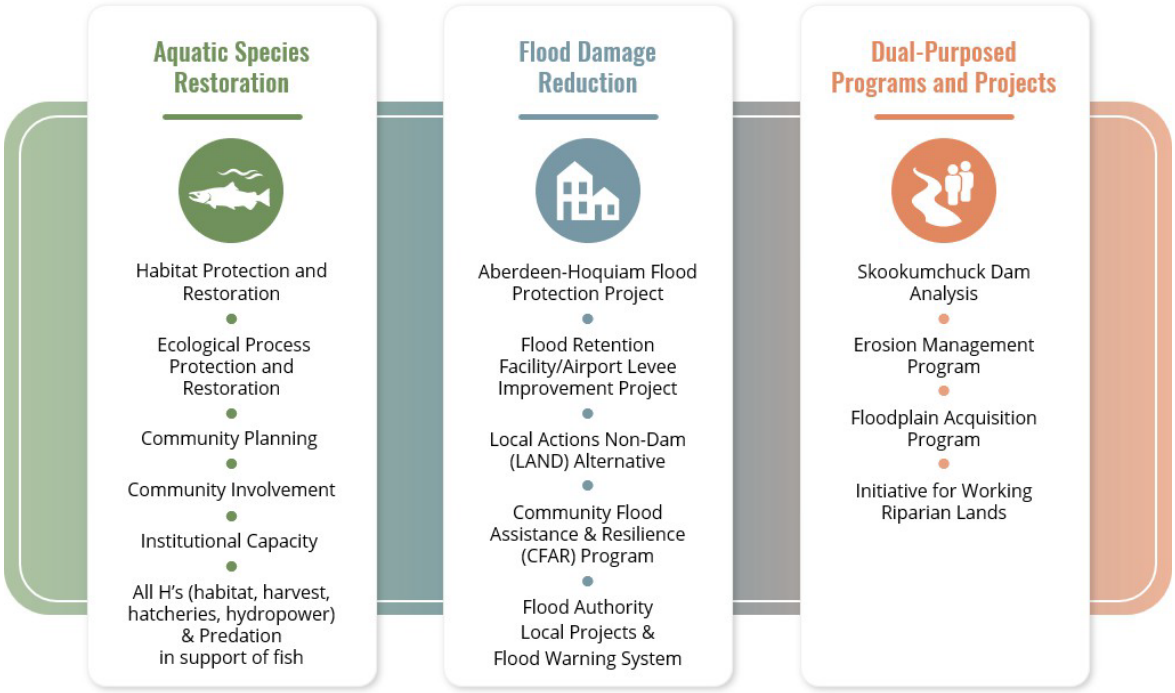

Figure 3. Potential programs and projects for inclusion in the Chehalis Basin Strategy
Source: Office of Chehalis Basin

Aquatic species restoration

Aquatic Species Restoration Plan (ASRP). Efforts that are focused on the Strategy's aquatic species habitat restoration goals are encompassed within the ASRP. This is the Strategy's science-informed, collaborative, community-driven roadmap outlining what the next 30 years of aquatic species habitat protection and restoration along more than 550 miles of priority rivers and streams in the Chehalis Basin could look like with long-term funding and implementation support. The plan is led by its Steering Committee – the voting members of which include the Confederated Tribes of the Chehalis Reservation, the Quinault Indian Nation, and the Washington Department of Fish & Wildlife (WDFW) – that has collaboratively developed program priorities and a structure for how projects will be developed and funded.

The ASRP uses a collaborative approach to implementation to make sure projects are technically viable, locally supported, and making progress towards meeting program and Strategy goals across the basin. Local organizations work with landowners and restoration professionals on Regional Implementation Teams to identify and develop projects. Projects across the basin include fish barrier removal, restoration plantings, floodplain restoration through voluntary property acquisition, invasive species removal, and large woody debris installation. These restoration activities are funded on a continuous basis, allowing flexibility to act on opportunities as they arise while ensuring the highest-priority activities are addressed first. (See the ASRP section of this report for more details.)

Specific program goals of the ASRP include:

- Protect and restore natural habitat-forming processes within the Chehalis Basin watershed context.
- Increase the quality and quantity of habitats for aquatic species in priority areas within the Chehalis Basin.
- Protect and restore aquatic species viability within and across the Chehalis Basin while considering viable species population parameters.
- Increase watershed resiliency to climate change by protecting and improving natural water quantity and timing characteristics and water quality characteristics.
- Build recognition of and support for ASRP actions and the ways the ASRP supports resilient human communities.

Science-informed, collaborative, and community-driven in the pursuit to protect and restore aquatic species habitat

The vision of the ASRP is to protect and restore habitat in the Chehalis Basin to support healthy and harvestable salmon populations, robust and diverse populations of native aquatic and semi-aquatic species, and productive ecosystems that are resilient to climate change and human-caused stressors, all while honoring the social, economic, and cultural values of the region and maintaining working lands.



Rep. Steve Tharinger (24th LD) hears from Grays Harbor Conservation District project manager Tom Kollasch about restoration along the Wynoochee River

Photo credit: Office of Chehalis Basin

Other aquatic species actions (e.g., "All H's" [habitat, harvest, hatcheries, hydropower] and predation) in support of fish. To inform improved and integrated salmon management decisions, OCB and ASRP staff, scientific experts, partner agencies, and Tribes are working to understand the linkages between ASRP habitat restoration actions, harvest and hatchery considerations, and predation by non-native fish and other species. This work has included collaborating with outside experts to develop a salmon analyzer tool for the Chehalis Basin that illustrates the complex and interconnected nature of habitat, hatchery, harvest, hydropower, and predation to share with the Chehalis Basin Board, as well as bringing in experts to discuss scientific and management actions on these topics.

Flood damage reduction

Efforts related to flood damage reduction span multiple projects and programs. The Board's major decisions on what projects will comprise a comprehensive long-term flood damage reduction strategy are forthcoming and anticipated between Q3 2024 and Q3 2026, as noted above.

Aberdeen-Hoquiam Flood Protection Project. The cities of Aberdeen and Hoquiam in the lower basin are partnering on a coordinated approach to reduce flooding, promote community development, and encourage economic vitality. The flood protection project is made up of two critical levees, the North Shore Levee (4.1 miles) and North Shore Levee – West Segment (3.8 miles). Once constructed, the project is expected to protect more than 5,100 properties, 1,350 businesses, and 1,290 jobs, and will save property owners and businesses an estimated $2.2 million annually in FEMA flood insurance premiums. (See the Aberdeen-Hoquiam Flood Protection Project section of this report for more details.)

Flood Retention Facility/Airport Levee Improvement Project. The Chehalis River Basin Flood Control Zone District has proposed a project in the upper Chehalis River Basin (also known as the proposed Chehalis River Basin Dam) to A) temporarily store flood waters from the Willapa Hills with a new flood retention facility built near Pe Ell, and B) improve the levee at the Chehalis-Centralia Airport as well as raise the elevation of Airport Road to better protect the region's airport, local businesses, and transportation corridors. If built, the project is expected to significantly reduce flood damage from Pe Ell to Centralia during major flood events. (See the Flood Retention Facility/Airport Levee Improvement Project section for more details.)

Local Actions Non-Dam (LAND) Alternative. Guided by a Steering Group made up of Board members, community representatives, and other stakeholders engaged in the Strategy, the LAND Alternative is an effort to develop an approach to reduce long-term flood damage across the Chehalis Basin as an alternative to — or in addition to — the proposed Flood Retention Facility/Airport Levee Improvement Project**.** LAND seeks to provide flood damage reduction while considering impacts to local wildlife, residents, and businesses. Many of the proposed projects, programs, and policies of the LAND Alternative are likely to be essential components of the long-term flood damage reduction approach regardless of whether the proposed flood retention facility is implemented. (See the LAND Alternative section for more details.)

A legacy of collaboration that leverages significant federal investments

Despite the complex challenges at hand, collaboration has been at the core of OCB and the Board's efforts. This legacy of successful collaboration has enabled OCB-funded programs and projects to leverage resources. As demonstrated by the recent award of $99.5 million in total federal funding to the Aberdeen-Hoquiam Flood Protection Project — including a historically large grant award from the FEMA Building Resilient Infrastructure and Communities (BRIC) Program — the efforts within the Chehalis Basin are being recognized by decision-makers outside of Washington state. (See the Aberdeen-Hoquiam Flood Protection Project section for more details.) A focus of OCB and the Board now and in the coming years is to diversify its funding portfolio, building on state and local investments in the basin from the last decade.

Community Flood Assistance & Resilience (CFAR) Program. The Community Flood Assistance and Resilience Program seeks to support local and Tribal governments and residents in the Chehalis Basin by enhancing floodplain management and reducing the potential for flood damage to structures. Administered through OCB, CFAR works with local governments to improve their floodplain management programs, conducts direct technical assistance for basin residents and businesses on how to reduce their exposure to flood damage and navigate flood insurance options, and provides financial assistance for basin property owners to floodproof, elevate, move, or remove structures at risk of flooding. (See the CFAR Program section for more details.)

Flood Authority projects and Flood Warning System. Since its inception in 2008, the Chehalis River Basin Flood Authority has created local, on-the-ground solutions that protect basin residents and communities from flood damage and help them prepare for flood emergencies. The Flood Authority prioritizes and funds flood hazard mitigation projects such as farm pads, pump stations, and engineered projects to protect buildings and key infrastructure throughout the basin. In addition to funding local projects, the Flood Authority maintains the Chehalis River Basin Flood Warning System, which provides real-time information to basin residents to track and monitor flood conditions (e.g., rising rivers, weather forecasts, and road closures). (See the Flood Authority section for more details.)

Dual-purposed projects and programs

Several cross-cutting programs serve both Strategy goals and are categorized as dual-purposed elements.

Skookumchuck Dam Analysis. The planned 2025 closure of the TransAlta coal-fired electrical generation facility on the Skookumchuck River will open new options for operations of the Skookumchuck Dam. The dam wasn't designed to provide flood damage reduction benefits; however, it does currently block upstream and downstream passage of several fish species, including spring and fall Chinook, steelhead, and coho salmon. At the request of the Board and with the cooperation of current dam owner, OCB staff and consultants have worked with a group of interested parties to investigate ways in which the dam could be modified (or potentially removed) to improve fish passage and/or reduce flood damage without disrupting a vital water supply downstream. (See the Skookumchuck Dam Analysis section for more details.)

Erosion Management Program. Administered through OCB, the Erosion Management Program improves aquatic habitat conditions and protects public infrastructure, private structures, and agricultural lands that are threatened by erosion. Two dedicated funds ensure multiple erosion project needs are met: urgent/imminent projects and proactive reach-scale[16] projects. A third category of funding advances technical studies that increase the overall understanding of erosion in the basin and provides funding and technical assistance to jurisdictions and Tribes to reduce future development in erosion hazard areas. It seeks to reduce the use of hard bank stabilization practices by promoting the use of bioengineering techniques to manage erosion

[16] Reach-scale is defined as extending a minimum of one river mile in length across one or more properties.

and improve aquatic habitat conditions. (See the Erosion Management Program section for more details.)



Rep. Joel McEntire (19th LD) tours the ASRP Stillman Creek Early Action Reach habitat restoration project.
Photo credit: Office of Chehalis Basin

Voluntary Acquisition Program. Several Strategy programs — including the ASRP, CFAR, and the Erosion Management Program — are working with willing landowners to pursue voluntary property acquisitions. These voluntary acquisitions support both habitat restoration and flood damage reduction goals. As acquisition activities increase across the Strategy, OCB expects an increased need for coordinated acquisition support and resources that help navigate standard protocols and requirements while being flexible to adapt to the needs of individual programs. To meet this need, a centralized program administered through OCB is being developed and will provide a consistent, efficient approach to scaling voluntary acquisitions. The program also will identify and fund multi-benefit acquisition projects that serve the dual purposes of the Strategy but may not fit perfectly into other, existing Strategy programs. (See the Voluntary Acquisition Program section for more details.)

Initiative for Working Riparian Lands. In collaboration with the Washington State University Extension, OCB plans to bring the statewide Initiative for Working Riparian Lands to the Chehalis Basin to directly benefit local farmers interested in riparian agroforestry. Promoting agroforestry in riparian farms throughout the basin will reduce the need for erosion management and complement ASRP-led restoration projects. The initiative will accomplish its goals by partnering with local farmers and resource managers to create demonstration sites, promote adoption, and develop the tools, networks, and markets to help agroforestry techniques succeed in a riparian context. (See the Initiative for Working Riparian Lands section for more details.)



A LAND Alternative Community Values Workshop held in May 2022.
Photo credit: Office of Chehalis Basin

Strategy Phase 1: Early Action Implementation and Initial Strategy Development

Characteristics of the phase

OCB defines this early phase of action implementation and Strategy development as the period beginning with the Governor's Work Group in 2012 through June 2023, the end of the 2021-2023 biennium. This first decade of the Strategy is best characterized by several overarching accomplishments, including implementation of a substantial number of near-term priority projects, the launching of foundational collaborative processes, the investment in several scientific analyses and technical evaluations to support development of the final integrated long-term Strategy, and creation of several key new programs to position the Strategy for scaled implementation in future decades.

Early project implementation of near-term priorities and pilot project learning. While the integrated long-term Strategy was still in its initial development, OCB, the Board, and basin partners together realized a significant breadth and diversity of early action implementation representing over 140 projects and $152 million of on-the-ground investments in the basin (see Figure 4). These priority restoration and flood damage reduction projects have directly benefited communities, critical infrastructure, and aquatic species across the basin and have made communities and aquatic life more prepared and resilient to address current challenges and the accelerating influences of a changing climate. Early implementation has taken the shape of both experimental pilot projects that have supported programmatic learning and adjustments – such as the Early Action Reach projects within the ASRP and personalized technical assistance to property owners seeking home elevations within the CFAR program – as well as many other project investments that have met emergent near-term needs and opportunities for aquatic species habitat restoration and flood damage reduction.

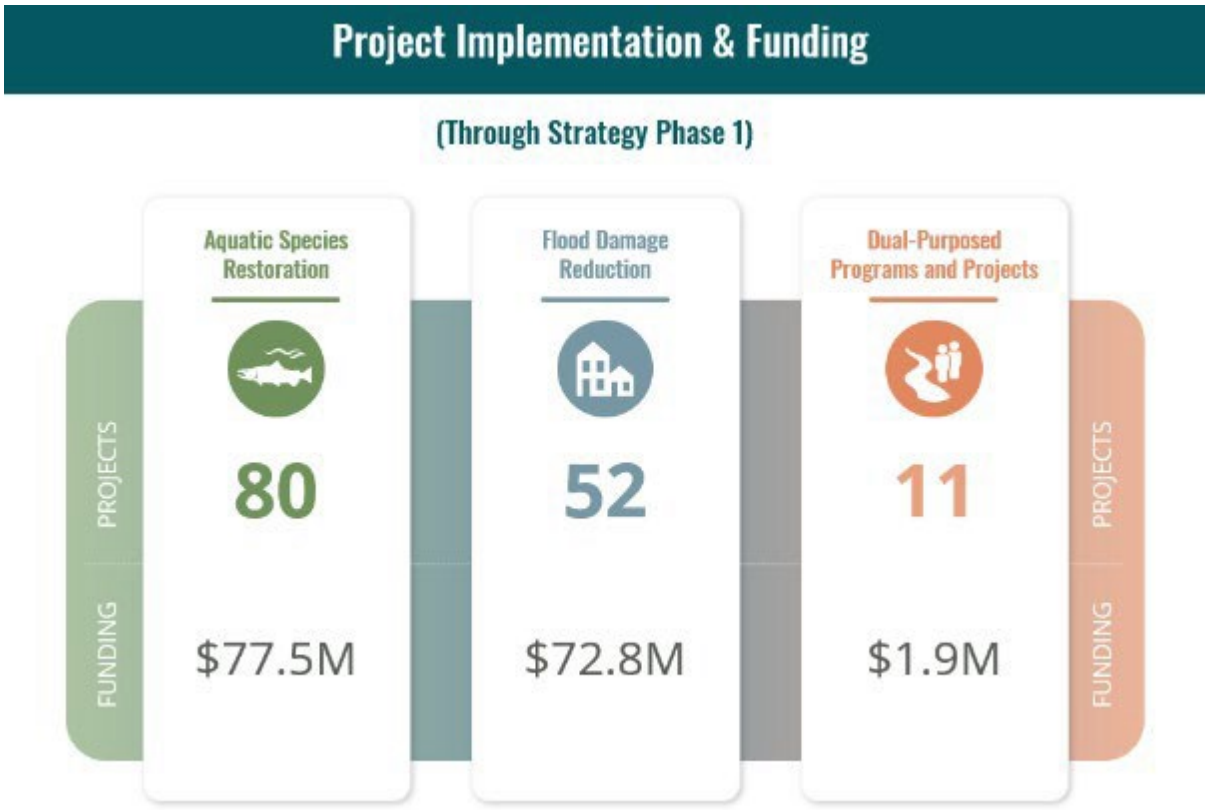

Figure 4. Strategy Phase 1 on-the-ground project investments across in the basin
Source: Office of Chehalis Basin, 2023

Direct, on-the-ground project investments for both aquatic species restoration and flood damage reduction projects as a proportion of the overall Strategy budget have ramped up significantly in recent years. As programs across the Strategy move out of design and development into the scaled project implementation for which they are established, this trend will continue to increase.

Launch of collaborative decision-making structures. Alongside basin-wide implementation progress, Strategy Phase 1 launched various collaborative decision-making and governance structures to guide Strategy development and project investments, including OCB, the Board, ASRP Steering Committee, and LAND Steering Group, among many other smaller, less formal steering groups and technical committees. These entities have provided the leadership and administrative frameworks from which all Strategy efforts derive. They also have enabled the basin's Tribes to directly engage in shared decision-making across all aspects of the Strategy.

Foundational science, exploratory analyses, and evaluation of options. In addition to the formation of these collaborative structures, state investments have funded critical advancements in scientific and technical information, exploratory analyses, and evaluations of the suite of Strategy options to create a foundation of science and robust datasets across the basin to better understand aquatic species, habitat condition, flood trends, and the current or potential future effects of existing and proposed flood-related infrastructure. This range of studies will ultimately support the Board's long-term decision-making and ensure strategic

investments are informed by science in future phases of the Strategy, both in restoration priority-setting and for the basin's overall approach to flood damage reduction.

Most notable of these studies are the SEPA PEIS, Aquatic Species Restoration Plan, the proposed Flood Retention Facility/Airport Levee Improvement Project Draft SEPA and National Environmental Policy Act (NEPA) environmental impact statements (EISs), the development of the LAND Alternative, and the Skookumchuck Dam analysis.

Preliminary outcomes measures defined. To monitor the performance of the Strategy and evaluate the success of its implementation, per RCW 43.21A.732, the Board developed preliminary qualitative and quantitative outcomes measures for aquatic species restoration and flood damage reduction. These preliminary measures have been used in Strategy Phase 1 to evaluate alternatives in the PEIS, to track the performance of ASRP efforts to date, and to guide development and evaluation of flood damage reduction actions, including the LAND Alternative. Measures will be further defined and finalized in Phase 2 to guide monitoring activities and to adaptively adjust project priorities and investments to maximize implementation success in Phases 2 and 3.

Program development in anticipation of scaled implementation. Strategy Phase 1 was characterized by the formation of many new and emergent programs unique to Washington state and specifically designed for the Chehalis Basin, including the ASRP, CFAR, the Flood Warning System, the Erosion Management Program, and the Voluntary Acquisition Program. OCB has led this program development collaboratively in consultation with a wide array of perspectives and expertise from state, local, and Tribal entities, technical experts, and broader basin interests.

For specific accomplishments in Strategy Phase 1, see detailed phased implementation information on the Strategy elements.



Centralia Police Chief Stacy Denham, City Manager Rob Hill and state Rep. Peter Abbarno (20th LD) talk during an event highlighting work around the Flood Authority-funded China Creek project in Centralia.
Photo credit: The Chronicle

Strategy Phase 2: Mid-Term Action Implementation and Release of the Integrated Long-Term Strategy

Characteristics of the phase

This second phase of the Strategy represents an important period of the Board's decision-making and long-term planning and will culminate in the final key provisional decisions of the Board-approved integrated long-term Strategy to advance aquatic species restoration and flood damage reduction across the basin in the coming decades. OCB marks this second phase as beginning in Q3 2023 and lasting through the Board's identification of all final elements of the Strategy. The estimated end date for this decision-making is between Q3 2024 and Q3 2026, subject to the availability of certain evaluation results to inform Board deliberations.

Continued and scaled project implementation. During this period of decision-making, the Strategy will continue to support on-the-ground priority investments for both aquatic species and flood damage reduction across the basin. With the direction of the Board, OCB will administer funding and coordinate the initiation and completion of projects across both Strategy goals with increasing scale and efficiency. Specific anticipated milestones in this phase across Strategy elements are further described in the following section.

Advancement of scientific and technical information, exploratory analyses, and comparative evaluations of Strategy options. Since a major milestone for the Board in this phase will be deciding the comprehensive flood damage reduction approach for the basin, a central focus leading up to the recommendation will be the completion, or substantial completion, of several analyses. These could include, but are not limited to, the Final SEPA and NEPA EISs for the proposed Flood Retention Facility/Airport Levee Improvement Project, refinements to the LAND Alternative, and independent cost-benefit, socioeconomic and environmental justice evaluation of the proposed Flood Retention Facility/Airport Levee Improvement Project, LAND Alternative, and other flood damage reduction, aquatic species, and dual-purposed actions across the Strategy. This evaluation, as well as consideration of ASRP investment levels, efforts beyond habitat restoration to support aquatic species, and other investment levels and sequencing of efforts across all major projects and programs, will inform the Board's final decision-making on the integrated long-term Strategy.

Board decisions on the integrated long-term Strategy. In Strategy Phase 2, the Board is expected to finalize several key decisions for the Strategy, some of which may be provisional. Decisions are considered provisional if they are contingent, for example, upon the results of the comparative evaluation or Final EISs, subject to other approval processes (e.g., regulatory permitting), or subject to future modification based on the adaptive management process described in Strategy Phase 3. The Board's major Strategy Phase 2 decisions include:

- **A recommended approach to reducing flood damage**, specifically whether the Board supports continuing to invest in the proposed Flood Retention Facility/Airport Levee Improvement Project, the LAND Alternative, or a combination of the two to achieve the Strategy's flood damage reduction goals. This recommended approach will also consider to what extent the CFAR Program, Flood Authority local projects, and the Skookumchuck

Dam will contribute to the flood damage reduction plan. Note that even if recommended by the Board, the structural components of both the Flood Retention Facility/Airport Levee Improvement Project and the LAND Alternative would ultimately require support from local jurisdictions in which they would reside (in the form of project sponsorship, local matching funds, etc.), as well as permit approvals from local, state, and federal regulators, prior to construction.

- **Appropriate long-term investment levels for all elements of the Strategy**. The Board will decide the appropriate funding required for implementing the Strategy's flood damage reduction approach, ASRP implementation and other aquatic species restoration actions over a 30-year planning horizon, as well as all dual-purposed programs and projects. Long-term implementation funding across the Strategy will be determined by the Board's desired balance across the Strategy's two goals.
- **Recommended implementation prioritization and sequencing across the Strategy elements to maximize benefits to the basin.** The Board will consider and provide guidance, for example, on what projects should be completed prior to construction of any approved flood damage reduction actions to offset impacts and assist aquatic species in adapting to changes in the river system, or which order the components of the suite of flood damage reduction actions represented in the LAND Alternative (if recommended by the Board) should be initiated to expedite flood damage reduction relief to basin residents and businesses experiencing recurring flood damage.
- **Finalized outcomes measures to guide ongoing monitoring and adaptive management.** The Board will define and finalize the quantitative and qualitative outcomes measures that will guide the ongoing evaluation of the Strategy's success and any adjustments needed in the remainder of Strategy Phase 2 and in Strategy Phase 3 to maximize performance toward its dual goals. See Table 2 and Table 3 for the preliminary outcomes



Governor Inslee gets a tour of the Aquatic Species Restoration Plan's large-scale project site along the Wynoochee River.
Photo credit: Office of Chehalis Basin

measures for both aquatic species restoration and flood damage reduction. The Board also will define specific targets, including those for any new measures it identifies for dual-purposed or Strategy-wide efforts, as more information becomes available regarding the technical, operational, and economic feasibility of different actions.

- **What new governance structures, if any, will be necessary to realize the Board's recommendations.** The Board will consider and identify whether any new entities would need to be established to fund, own, or maintain the flood damage reduction infrastructure it's recommending, or scale up implementation of basin-wide aquatic species restoration, flood damage reduction, and/or dual-purposed actions. Potential governance structures include a special district with taxing authority to generate revenue for project costs, or another new body with ownership and long-term maintenance responsibilities for any major flood damage reduction infrastructure such as a dam or levees.

With these determinations in place, the Board's recommended vision of the integrated long-term Strategy will be complete. As noted above, it will be adjusted following an adaptive management model further described in Strategy Phase 3. Additionally, any major flood damage reduction infrastructure (e.g., a flood retention facility and/or levees) will be subject to local jurisdictional support and state and federal permitting processes.

Table 2. Preliminary outcomes measures for aquatic species habitat restoration

Goal	Example Preliminary Outcomes Measures
Protect and restore natural habitat-forming processes within the watershed	Acres of floodplain habitat reconnected to the rivers; miles made newly accessible through barrier corrections
Increase the quality and quantity of habitats for aquatic species in priority areas	Miles of riparian and stream habitat restored; acres of invasive vegetation treated; acres of native plants installed
Protect and restore aquatic species viability	Number of juvenile salmon produced and adults returning
Increase watershed resiliency to climate change by protecting and improving natural water quantity and timing characteristics and water quality characteristics	Reduction in summer water temperatures
Build recognition of and support for ASRP actions and the ways the ASRP supports resilient human communities	Number of landowners participating in ASRP projects

Source: ASRP Near-term (2021-2031) Implementation Report. Publication #22-13-001. Aquatic Species Restoration Plan Steering Committee, January 2022.

Table 3. Preliminary outcomes measures for flood damage reduction

Goal	Example Preliminary Outcomes Measures
Protect valuable structures from mainstem, catastrophic flooding	Percent reduction in structures vulnerable to flood damage in the 2080 predicted 100-year flood levels
Protect homes and businesses from seasonal urban flooding	Municipal stormwater systems would be capable of adequately accommodating stormwater runoff levels and protecting homes and businesses from seasonal flood damage
Protect lower basin properties and businesses from coastal storm surges	Removal of at least 5,100 properties and 1,354 businesses from the FEMA Special Flood Hazard Area designation through construction and certification of the Aberdeen-Hoquiam Flood Protection Project
Protect farmland and rural structures	Reduction of risk to economically productive lands due to migrating river channels and bank erosion; no damage to commercial agricultural operations above that which occurred in the 1990 flood
Protect critical facilities	Percent reduction in critical facilities vulnerable to flood damage in the 2080 predicted 100-year flood levels
Protect transportation routes	Substantial reduction in the overtopping and closure of I-5, State Highways 6 and 12, and BNSF rail mainline due to flooding; no closures to key county and city intersections and interchanges due to flooding; alternative routes available to minimize negative effects and prevent emergency service interruptions
Advance environmental justice	Communities with environmental justice concerns would suffer less hardship and damage from flooding, wouldn't be economically disadvantaged by displacement or otherwise disproportionately adversely affected by actions to reduce flood damage, and would be improved by flood solutions.
Prevent new at-risk development	No new structures vulnerable to channel erosion or mainstem or tributary flooding from 2080 predicted 100-year flood levels

Source: Proposed Final Outcomes for Evaluating Flood Damage Reduction from Local Actions Program. Memo from OCB Director to the Chehalis Basin Board, September 2020.

Funding portfolio identified. The Legislature's 2023-2025 biennium appropriation of $70 million across the Strategy — in addition to the $18.5 million funding match to secure federal grants awarded to the Aberdeen-Hoquiam Flood Protection Project — will fund the next two years of project implementation, evaluations, Board decision-making, and programmatic development (see Table 4 below for specific allocations in the Board's approved spending plan). While the total cost of investments will be unknown until all Strategy recommendations are finalized, OCB, the Board, and partners know that the state capital budget will not be able to meet the implementation goals across Strategy efforts in perpetuity. The Strategy needs a more diverse and sustainable funding portfolio to leverage state investments in future years.

With the assistance of a federal grant expert and basin partners, OCB and the Board are considering a suite of federal grant programs to target in a Strategy funding portfolio, including:

- FEMA Building Resilient Infrastructure and Communities Program (BRIC)
- FEMA Flood Mitigation Assistance Program
- USDOT National Culvert Removal, Replacement, and Restoration Program
- USDOT Rebuilding American Infrastructure with Sustainability and Equity (RAISE)
- NOAA Infrastructure Investment and Jobs Act (IIJA) Fish Passage Improvement Program
- NOAA National Coastal Resilience Fund
- USDA Flood and Watershed Prevention Operations Program grants
- USDA/NRCS Conservation & Environmental Quality grants
- DOI Grants for States and Tribes for Voluntary Restoration
- DOI Aquatic Ecosystem Restoration and Protection Projects
- DOI Fish Passage Program

OCB and the Board also will consider local funding sources in addition to these federal grant opportunities. Local investment could be secured through a possible bond measure to enact a new property tax levy, or as noted above, a new special district taxing authority could be formed for specific infrastructure projects, for example.

Continued program development and maturation. While the ASRP saw most of its program development in Strategy Phase 1, flood-related and dual-purposed programs will continue to be developed and refined based on early learning, emerging Strategy needs, and the Board's recommendations for the type and scale of flood damage reduction actions. Many elements of the LAND Alternative, such as home elevations and voluntary relocation of valuable structures out of the floodplain, are essential components of a long-term flood damage reduction approach with or without the proposed the proposed Flood Retention Facility/Airport Levee Improvement Project, although the scale and location of where such actions may be needed remains to be finalized. OCB will identify how its existing programs and activities, particularly the CFAR Program and the Voluntary Acquisition Program, could evolve and/or scale up to incorporate elements of the LAND Alternative that may go forward. Additionally, the Initiative for Working Riparian Lands and the Erosion Management Program represent other efforts that will see additional program development and maturation to partner with a greater number of people living and working in the basin on dual-purposed, multi-benefit projects.



Highly eroded banks on the Wynoochee River
Photo credit: Office of Chehalis Basin

2023-2025 biennium spending plan

In May 2023, the Chehalis Basin Board approved an anticipated spending plan for the 2023-2025 biennium, in line with the Washington State Legislature's 2023-2025 biennium budget appropriations. For additional Strategy Phase 2 anticipated milestones as well as expected actions supported by the Board's 2023-2025 spending plan, see the report sections with more detailed phased implementation information on each of the Strategy elements.

Table 4. The Chehalis Basin Board's 2023-2025 biennium spending plan[17]

Funding Category	Sum ($)
Aquatic Species Habitat Restoration	**$30,448,244**
ASRP	$30,198,244
Other Aquatic Species Actions (All H's and Predation in support of fish)	$250,000
Flood Damage Reduction	**$30,448,244**
Flood Retention Facility/Airport Levee Improvement Project	$20,897,742
LAND Alternative	$3,000,000
CFAR	$3,000,000
Flood Authority Local Projects & Flood Warning System	$3,550,502
Dual-Purposed Programs and Projects	**$5,203,512**
Skookumchuck Dam Analysis	$575,000
Erosion Management Program	$895,000
Voluntary Acquisition Program	$575,000
New Integrated Projects[18]	$150,000
Contract Management (WA State Recreation and Conservation Office)	$570,000
Agency and Tribal Strategy Participation	$1,853,512
Strategy Outreach & Engagement	$585,000
OCB and Board Operations	**$3,900,000**
Total	**$70,000,000**
Aberdeen-Hoquiam Flood Protection Project[19]	*$18,500,000*

[17] This spending plan does not include plans for reappropriated funds from prior biennia.
[18] Includes $50,000 for the Initiative for Working Riparian Lands.
[19] The Chehalis Basin Board supported $35.5 million in 2023-2025 biennium funding separate from the Chehalis Basin Strategy recommended package; of that request, the Washington State Legislature appropriated $18.5 million with the legislative intent to provide an additional $17.5 million in the 2025-2027 biennium.

Strategy Phase 3: Integrated Long-Term Strategy Full Implementation with Ongoing Monitoring and Adaptive Management

Characteristics of the phase

OCB defines the Strategy's third phase as beginning once the Board has finalized all major provisional decisions of the integrated long-term Strategy and long-term funding sources have been identified, estimated between Q3 2024 and Q3 2026. While the duration of this phase is unknown, it's anticipated to last at least 30 years and itself will likely be phased to make sure implementation is paced and sequenced to maximize and balance benefits to the basin. During this phase, implementation and investment levels will be adapted to optimize success in pursuit of the Strategy's goals using finalized outcomes measures.

Long-term funding portfolio secured. While the suite of targeted federal grants and local funding sources needed to meet the investment needs of the Strategy will be identified in Strategy Phase 2, OCB and the Board will work with basin partners in Strategy Phase 3 to secure those funds for both one-time and recurring investments in the basin. Subject to what the Board ultimately recommends for a targeted funding portfolio and the will of voters across the basin, this will likely include the successful award of several federal grants, the creation of new local taxing authorities, and/or bond measure(s).

Formation of new governance structures, as needed. Any new governance structures identified by the Board in Strategy Phase 2 as necessary to fund and oversee any recommended flood damage reduction infrastructure and/or scale up aquatic species or dual-purposed project implementation will be created in Strategy Phase 3. As noted above, these could include a new special taxing district, for example, and would require the vote of basin residents.

Scaled and accelerated implementation. With programs matured and funding in place, the Strategy will be poised in Strategy Phase 3 to roll out aquatic species restoration, flood damage reduction, and dual-purposed projects at a pace and scale not yet previously achieved. As noted above, OCB anticipates the need for a phased implementation plan specific to this period of the Strategy to maximize and balance efforts across the aquatic species restoration, flood damage reduction, and dual-purposed projects and priorities over the long-term planning horizon. Across the Strategy, OCB and its partners will look to create efficiencies across programs and projects, and dedicate the appropriate staffing and resources needed to achieve these gains.

- **For aquatic species restoration**. Following guidance from the Board and ASRP Steering Committee and in partnership with the Regional Implementation Teams, the ASRP will apply its identified portfolio of priority actions and prioritization and sequencing plan to move an expanded suite of priority restoration actions through its project pipeline process. Following Board guidance, OCB and partners also will continue actions to address "All H's" and predation issues.
- **For flood damage reduction**. Pending the Board's final decision, the Flood Retention Facility/Airport Levee Improvement Project may move into the next phase of permitting

(comprised of a series of federal, state, and local permits), and OCB and its jurisdictional and agency partners will plan for, study, design, permit (where necessary), and complete the other suite of local structural and non-structural actions to reduce basin-wide flooding, which could include projects, programs, and policies related to levees, diversions, and conveyances, alongside the protection, elevation, or relocation of valuable at-risk structures in the floodplain. Regardless of the Board's decision on flood damage reduction actions, the CFAR program is anticipated to see a significant scaling of technical assistance and guidance to basin residents, businesses, and jurisdictions to meet demands for voluntary actions in property-level flood damage reduction and jurisdictional floodplain management. The Aberdeen-Hoquiam Flood Mitigation Project is expected to be fully constructed and certified.

- **Dual-purposed programs,** including the Voluntary Acquisition Program and Erosion Management Program, will create efficiencies for prioritizing and executing projects that benefit both goals of the Strategy. Future Skookumchuck Dam management and operations will be determined following the Board's decision of a preferred alternative; OCB and the Board will continue to coordinate with TransAlta as needed on any necessary design, environmental review, permitting, or construction needs. Pending outcomes from the pilot, OCB may also scale riparian buffer projects under the Initiative for Working Riparian Lands.

Ongoing monitoring and adaptive management across Strategy elements. Monitoring and adaptive management will be a critical aspect of long-term implementation of the Strategy. Already a cornerstone for ASRP, all programs and projects under the flood damage reduction and dual-purposed tracks will similarly use the qualitative and quantitative outcomes measures finalized in Strategy Phase 2 to ensure project effectiveness and that investments are responding to evolving science and programmatic best practices, changing social, economic, and ecological opportunities and constraints, and other realities on the ground. As part of this adaptive management, experimental and/or pilot phase project and program design assumptions will be reviewed and adjusted for future implementation based on actual performance. In Strategy Phase 3 the Board will also finalize a process or recurrence for monitoring and adaptive management and refinement of investments across the Strategy.

Periodic reporting on the Strategy's performance. Building on the cycles of monitoring and evaluation for adaptive management across the Strategy, OCB will prepare regular status updates on the Strategy's overall performance across all programs and projects. These updates will periodically be shared with the Legislature and Governor's Office.

Ongoing coordination and collaboration with basin partners. For as long as the efforts of the integrated long-term Strategy are underway in the Chehalis Basin, OCB and the Board will continue to provide administrative and oversight roles, respectively, in the Strategy's implementation. The tradition of collaboration will remain essential to realize the maximum benefits to people and species that the Strategy envisions. OCB will continue to focus on partnerships with community leaders, local, state, and Tribal government officials, local residents, scientists, business owners, and nonprofit organizations to coordinate actions for a safe, healthy, and abundant Chehalis Basin.

Phased Implementation of the Chehalis Basin Strategy Elements

Aquatic Species Restoration Plan

Program overview

As a key component of the Chehalis Basin Strategy, the Aquatic Species Restoration Plan (ASRP) is designed to restore and protect aquatic habitats to support healthy, resilient populations of native aquatic species into the future. The ASRP acts on a historic opportunity to prevent further significant ecological degradation and seeks to ensure a brighter future for native salmon, other aquatic species, habitats, and the local communities who depend on and benefit from them.

The ASRP is science-informed, collaborative, and community-driven in its pursuit to reverse the alarming trends of declining aquatic species populations. The vision of the ASRP is to protect and restore habitat in the Chehalis Basin to support healthy and harvestable salmon populations, robust and diverse populations of native aquatic and semi-aquatic species, and productive ecosystems that are resilient to climate change and human-caused stressors, all while honoring the social, economic, and cultural values of the region and maintaining working lands.

A unique, robust implementation process provides a clear roadmap for the highest restoration priorities and leverages previous investments into the future. The ASRP honors existing community values, builds on previous actions to protect and restore basin habitat and ecological processes, and complements investments the state and others have already made in aquatic species habitat restoration and protection. Guided by science, policy and implementation feasibility, a robust implementation plan provides a clear list of priority actions for project sponsors and partners engaged in on-the-ground restoration activities to identify and complete projects that will result in the greatest ecological lift.

The ASRP also prioritizes and sequences restoration actions to strategically build on past and current investments. This prioritization and sequencing approach is unique to restoration programs in Washington state in that it recommends specific actions that target limiting factors for aquatic species that most affect their survival and abundance by geographic area within 10-year implementation periods (e.g., removing barriers to fish passage and adding riparian vegetation to increase shade and reduce water temperatures). This approach also allows decision makers to see where and how their investments are working in the basin.

The plan is guided by the Confederated Tribes of the Chehalis Reservation, the Quinault Indian Nation, and the Washington Department of Fish & Wildlife (WDFW) in collaboration with many partners, including project sponsors, landowners, and technical experts. A policy-focused Steering Committee was formed in 2019 to tackle challenges of ASRP implementation, including funding support, engaging and partnering with private landowners across the basin, changes in environmental conditions such as river and stream temperatures, and building the capacity of the communities and organizations within the Chehalis Basin to take on the large-

scale actions and long-term stewardship required. The ASRP Steering Committee, made up of representatives from Tribes, state agencies, Grays Harbor Conservation District, and the Chehalis Basin Lead Entity for salmon recovery, oversees program development and implementation. The Steering Committee has also worked together with farmers, foresters, conservationists, other state agencies, local governments, and local landowners to seize opportunities, find solutions to challenges, and inform development and implementation of the ASRP.

Ultimately, the ASRP Steering Committee is responsible for developing and implementing the ASRP, which includes setting priorities and recommending funding allocations to the Chehalis Basin Board. It's supported by staff at the WDFW who carry out policy guidance through operational management of the program and supported by scientific and technical experts and implementation teams composed of restoration practitioners from across the basin.

The plan is flexible to meet changing conditions and to achieve desired outcomes. Since 2019, the Steering Committee has refined ASRP priorities to increase the effectiveness of on-the-ground actions. These refinements are part of a monitoring and adaptive management approach that ensures activities are achieving the stated program goals and to guide future investments in the program. This approach increases confidence of the projected gains in the viability of salmon and other aquatic species while increasing the potential scale of restoration efforts.

The ASRP operates in coordination with other programs and elements of the Chehalis Basin Strategy. The plan is complemented by many other initiatives in the Chehalis Basin Strategy to advance the two goals of aggressively pursuing both long-term flood damage reduction and aquatic species habitat restoration, and the program seeks opportunities to align and complement flood damage reduction work to better serve the basin's communities. Many of the ASRP habitat-focused actions also address flood-related impacts, including relocating or removing homes from floodways, opening barriers to fish migration that also moves water downstream more efficiently, encouraging local jurisdictions to adopt ecologically responsible land use and floodplain management practices, or placing large wood that can slow and redirect water into floodplains or away from streambanks.

In addition to the ASRP, the Chehalis Basin Strategy is funding an environmental analysis of the proposed Flood Retention Facility/Airport Levee Improvement Project, the Local Actions Non-Dam (LAND) Alternative, a Community Flood Assistance and Resilience (CFAR) program, the Erosion Management Program, and a series of smaller projects and initiatives for inclusion in the integrated long-term strategy.

As each of these initiatives progresses, the Office of Chehalis Basin will work closely with Tribes, government agencies, community members, and the Chehalis Basin Board to make sure that each element aligns with the overarching goals of the ASRP.

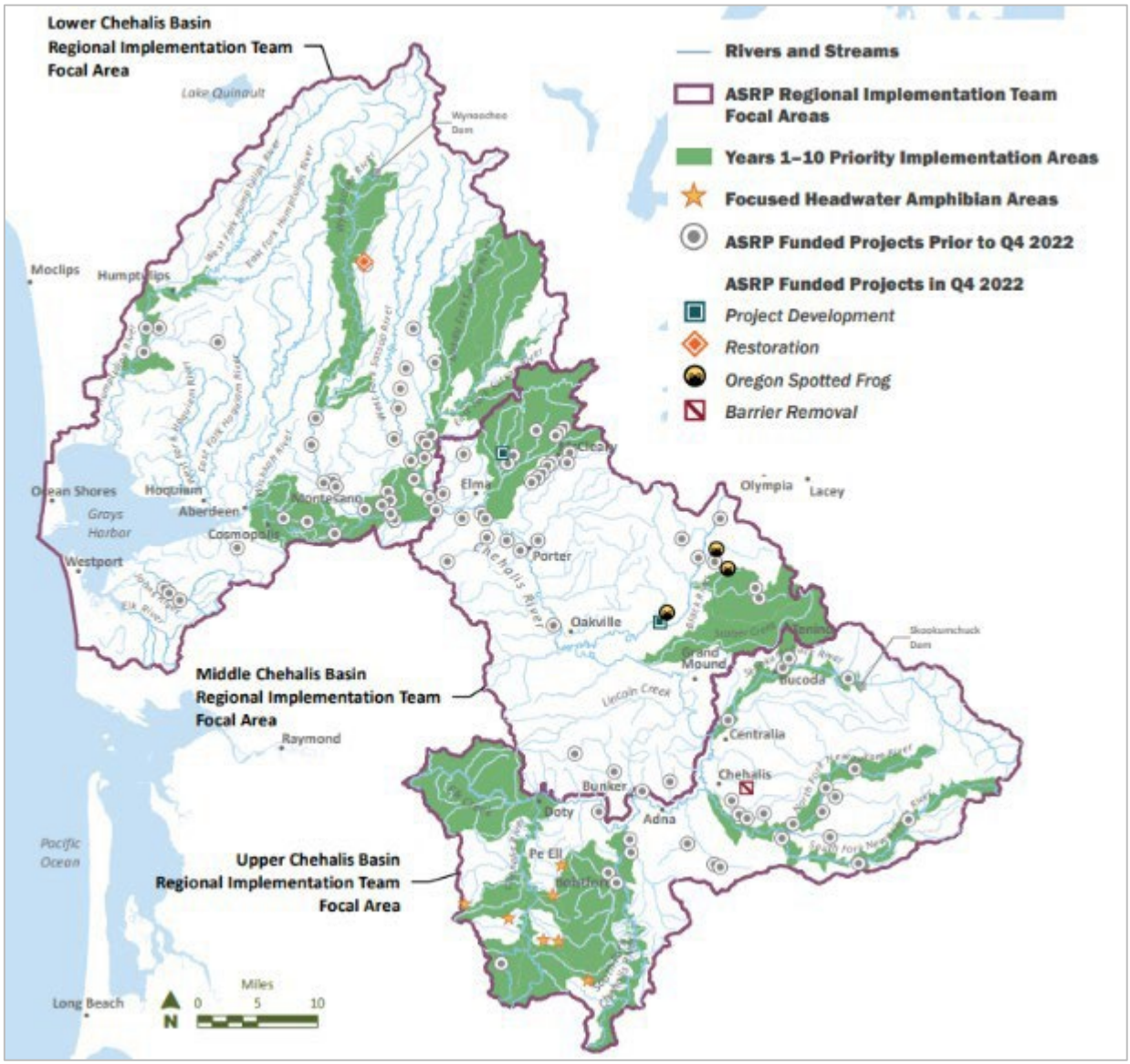

Figure 5. Map of ASRP priority implementation areas and funded projects through Q4 2022
Source: ASRP, 2023.

Strategy Phase 1 accomplishments

In Strategy Phase 1, the ASRP pursued both early on-the-ground project implementation and investments as well as programmatic development activities to set up a framework and process for strategic restoration planning. Significant progress has been through on-the-ground restoration. Alongside this, robust planning and program definition over the last several years have created a structured, strategic process for identifying, funding, and implementing the portfolio of priority restoration projects under the ASRP.

Real implementation progress for aquatic habitat restoration. The ASRP has been responsible for implementation approximately 80 completed and active projects since 2015, achieving real

floodplain and habitat restoration benefits throughout the basin. Projects have ranged from fish barrier removal, native tree and shrub planting, invasive species management, side channel restoration, and installation of large wood to improve habitat for a suite of aquatic species including fish and amphibians. These projects represent approximately $58 million of the total $77.5 million investment in ASRP, with approximately $32.2 million supported on-the-ground restoration actions across Grays Harbor, Thurston, and Lewis counties (see Table A-1).

Within the broader set of restoration activities, WDFW also worked with local landowners, conservations districts, and land trusts to initiate several habitat restoration pilot projects in the Chehalis Basin referred to as Early Action Reach projects. These project areas include the Skookumchuck, Wynoochee, and Satsop rivers, and on Stillman Creek, a tributary to the South Fork Chehalis River, involve restoration plantings, floodplain restoration, invasive species removal, and large wood placement in rivers that improve habitat for fish and other aquatic species. In the 2021-2023 biennium alone, ASRP met its goal to restore 9 miles of river habitat and 400 acres of floodplain habitat through its Early Action Reach projects.[20]

Economic growth and job creation for the region through restoration. While the primary purpose of ecological restoration is to improve the environment, an important short-term benefit of this work is the stimulation of the local economy that is created by spending on restoration activities. Restoration activities undertaken under the ASRP support jobs and investments circulated through the local economy, creating additional economic activity for the region.[21]

Table 5. Summary of ASRP implemented restoration activities and outcomes, 2015-2022

Activity	Grays Harbor County ($17.5 million)	Thurston County ($3.5 million)	Lewis County ($11.3 million)	Total
River miles restored	4.8	1.1	2.6	8.5
Acres of floodplain restored	137	101	30	269
Acres of habitat protected	156	102	38	295
Miles made newly accessible through barrier corrections	73	0.5	32	106
Acres of invasive vegetation treated	223	20	40	283
Acres of native plants installed	76	67	45	188

Source: ASRP, 2023.

Identified portfolio of priority actions. In 2019, the program released its Phase 1 Aquatic Species Restoration Plan presenting a detailed, science-informed roadmap for restoring habitat and protecting intact ecosystems for aquatic species along rivers and streams in the Chehalis Basin. In 2021, a more detailed Near-Term Implementation Report was released that identifies

[20] *Aquatic Species Restoration Plan: Part of an Ambitious Strategy for a Resilient Future.* ASRP, January 2023.
[21] *Restoration Economy Memorandum.* From Nat Kale (OCB) and Emilie McKain (WDFW) to the Chehalis Basin Board, April 2021.

a suite of immediate priority areas and actions for the first 10 years of implementation. [22] These actions are necessary to achieve the program's vision based on scientific data collection and analysis unprecedented anywhere in Washington. For each biennium, the ASRP Steering Committee has identified restoration and protection goals.[23]

Defined implementation structure. From 2019-2021, the ASRP Steering Committee also collaboratively created an Implementation Plan as described in its Near-Term Implementation Report that established a process and structure for how high-priority projects will be developed and funded to achieve the goals of the ASRP at a large scale.

Notable to the ASRP implementation structure are:

- **Regional Implementation Teams (RITs)** of project sponsors, community members, and other interested parties who coordinate and collaborate on ASRP project implementation under the leadership of local conservation districts. These teams, led by local Conservation Districts in Lewis, Thurston, and Grays Harbor counties, are charged with coordinating with local landowners and project sponsors to initiate project concepts and advance project opportunities in alignment with ASRP goals and priorities.
- **The project pipeline process**, rolled out in 2021, creates a streamlined method for bringing a project from initiation through completion, allocates funding, and identifies checkpoints for each phase of project development, design and review cycles, implementation, and closeout. This represents a shift away from a traditional grant-based model for restoration.
- **A prioritization and sequencing plan** to guide implementation actions and drive smart investment for 30-year horizon. Developed by scientific experts, this more detailed strategic plan identifies both priority locations and actions within the near-, mid-, and long-term time periods. It's the first of its kind in this region.
- **A plan for evaluating success with scientific monitoring.** In 2021, the Steering Committee also developed the Monitoring and Adaptive Management (M&AM) Plan[24] to support data-driven adjustments to restoration strategies with high-priority scientific studies and 5- and 10-year feedback and review cycles. The M&AM plan lays out the need for strategic monitoring of ASRP efforts, including monitoring of project effectiveness based on biological outcomes, status and trends monitoring for the overall basin, and testing of scientific hypotheses that underpin the ASRP.

[22] *ASRP Near-Term (2021-2031) Implementation Report.* Publication #22-13-001. Aquatic Species Restoration Plan Steering Committee, January 2022.
[23] *Chehalis Basin Strategy Aquatic Species Restoration Plan, Phase 1*. Publication #19-06-009. Aquatic Species Restoration Plan Steering Committee, November 2019.
[24] *ASRP Monitoring and Adaptive Management Plan*, ASRP Steering Committee and Monitoring and Adaptive Management Team, August 2021.

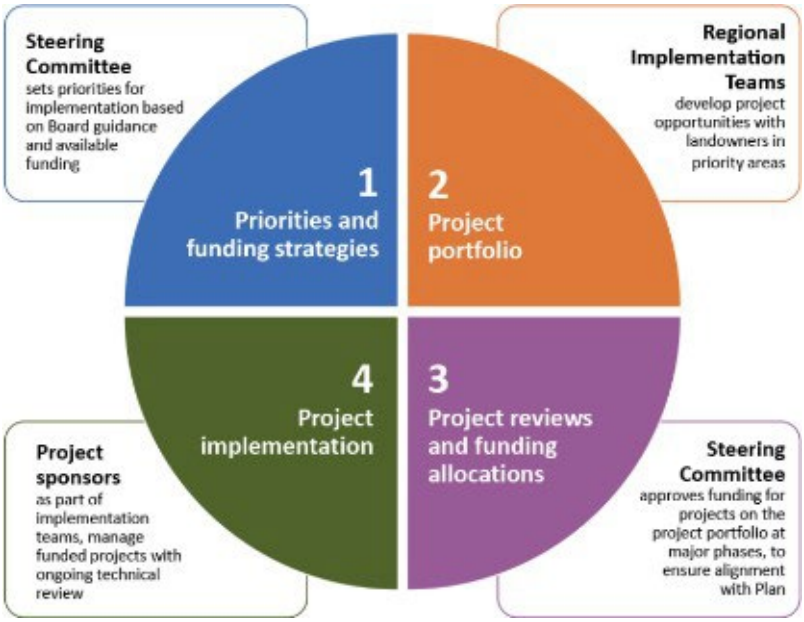

Figure 6. Implementation structure of the Aquatic Species Restoration Plan
Source: ASRP

Engaged the broader Chehalis Basin community on restoration efforts. Community engagement and involvement has been a key strategy of the ASRP approach, and will continue through a number of efforts:

- **Landowner and project sponsor outreach through the Regional Implementation Teams:** These teams, which coordinate with local landowners and project sponsors to initiate project concepts and advance project opportunities, have met monthly since 2022 to exchange ideas, share resources, present and discuss projects, and support each other.
- **A symposium for community members and restoration practitioners:** Each biennium, the ASRP has hosted a two-day ASRP symposium that focused on implementation and was directed toward basin residents and project partners. An emphasis was made to inform project sponsors and landowners about ways to get involved with the ASRP and where to find resources related to permitting, cultural resources, technical materials, and other topics. Symposium events were held in 2018, 2020, and 2022.
- **Informational and learning sessions:** Cultural resources and permitting learning sessions were offered to project sponsors, consultants, and restoration practitioners to educate, create networking opportunities, and share resources aimed at continuously improving the program and project implementation.

- **Outreach efforts through social media, in-person meetings, and other local events:** These included a lessons learned workshop, site visits, community meetings, and participation at the 2023 Chehalis film festival.[25]

"All H's" (habitat, harvest, hatcheries, hydropower) and predation in support of fish. ASRP staff, scientific experts, partner agencies, and Tribes continue work to understand linkages between ASRP habitat restoration actions, predation by non-native fish and other species, and harvest and hatchery considerations. In 2022 and 2023, WDFW staff worked with outside experts to develop a salmon analyzer tool for the Chehalis Basin that illustrates the complex and interconnected nature of habitat, hatchery, harvest, hydropower, and predation to share with the Chehalis Basin Board as well as bringing in experts to discuss scientific and management actions on these topics**.**

Strategy Phase 2 anticipated milestones

With a strategic programmatic framework in place, the ASRP will continue to refine, scale and adapt restoration implementation, and engage communities throughout the basin for collaborative restoration. Priorities in the 2023-2025 biennium and future years include:

- **Scaled and accelerated implementation of restoration projects.** The ASRP Steering Committee will continue to identify, review, and approve projects for on-the-ground implementation with available funding and scale up restoration through time to correspond with future funding to meet ASRP near- to long-term goals. Using the ASRP implementation process, sponsors will participate on Regional Implementation Teams to collaborate and bring project opportunities forward. Following RIT approval, project sponsor will work with a Technical Review Team and the ASRP Steering Committee to evaluate technical feasibility and alignment with program goals before receiving final funding approval.
- **Expansion of project sponsors.** While the current list of eligible sponsors has been expanded in recent years to a total of 20 entities, the program will continue recruitment of eligible sponsors to increase capacity to implement projects.
- **Landowner incentive planning.** ASRP staff in coordination with RITs, landowners, and partner organizations will continue efforts to identify opportunities to work with private landowners to increase participation in restoration and protection projects. This planning effort will identify landowner response to existing incentives as well as how to develop additional incentives to meet ASRP goals.
- **Development of a Protection Strategy**. In 2023, ASRP staff and technical experts, and partner organizations will build a draft strategy to protect intact, core, and high functioning habitat through acquisition and other mechanisms. Habitats and areas for protection include cold-water inputs, unique habitats, and features that support critical life stages of priority species. The strategy will also examine ways to protect restored habitat from being converted into developed land in the future.

[25] *2022 ASRP Annual Report.* Publication #23-13-001. Aquatic Species Restoration Plan Steering Committee, January 2023.



Board members Steve Malloch and Edna Fund learn about the Skookumchuck Early Action Reach habitat restoration project.
Photo Credit: Office of Chehalis Basin

- **Development of an Estuary Strategy.** In 2023, ASRP staff and technical experts will draft a strategy to restore and protect estuary habitats by understanding historical and existing conditions including habitat quality, aquatic species use, efforts currently underway to cleanup and restore the estuary, past and current impediments to restoration, and priority restoration focus areas.
- **Defining a more detailed Adaptive Management framework**. This work will build on the existing 2021 ASRP M&AM Plan to refine the feedback loop, deliverables, and triggers. The ASRP Steering Committee in close coordination with the Technical Advisory Group will develop a detailed adaptive management process that evaluates the science-policy interface including decision-making considerations, response strategies, and communication approaches that consider new information, emerging science, and implementation progress.
- **Coordination among implementers and technical and scientific bodies.** ASRP staff will continue to ensure the program applies science and best practices to reach its goals. Staff will bring implementation partners and scientific experts together on a regular basis to share knowledge and information that can inform project development, prioritization and sequencing of restoration and protection actions, identify gaps in science and implementation, solidify roles and expectations of each respective group, among other activities. Increased coordination will yield improved communication, support positive feedback loops, enhance learning and sharing opportunities, and ultimately increase efficiencies across the program.
- **Coordination with other efforts and programs across the strategy.** ASRP staff, agency staff, and partners will continue to coordinate on cross-cutting initiatives to further integrate, leverage, and build on current and future restoration and protection investments, including the emergent Voluntary Acquisition Program, Erosion Management Program, Skookumchuck Dam Analysis, CFAR, and LAND Alternative. Through coordination, staff can evaluate and act on opportunities that combine aquatic species habitat restoration with flood and water management activities. ASRP and agency staff are involved in multiple aspects of the Strategy, which promotes the exchange of knowledge and information while reducing duplicative work.

- **Ongoing community engagement with basin landowners and restoration partners.** ASRP will continue work to build capacity for taking on large-scale actions and long-term program needs. As part of this, the program will continue to offer workshops, trainings, site visits and community targeted learning opportunities, and the biannual symposium. Ongoing workshops and trainings will provide opportunities to share lessons learned from work to date to inform future implementation efforts, address knowledge and resource gaps, stay informed of ASRP and broader Strategy initiatives, and identify new ways to get involved.
- **Coordination with "All H's" (habitat, harvest, hatcheries, hydropower) and predation efforts in support of fish.** Ongoing work in 2023 and beyond includes gathering presenters on topics ranging from predation (non-native fish and pinnipeds), fisheries harvest coordination and management, hatchery production and needs in the basin, and recreational impacts to fish habitat, among other topics, to identify opportunities for improvements and advocacy. The Board plans to use this information to identify any adjustments to their overall approach to aquatic species restoration in the basin.

All future initiatives and large investment decisions will be guided by the Chehalis Basin Board, in consultation with relevant ASRP Steering Committee's recommendations. The Board will continue to evaluate the components of a long-term Chehalis Basin Strategy in the 2023-2025 biennium. Alongside that evaluation, the ASRP will continue to implement projects with available funding until a finalized strategy with legislative support is in place to support long-term implementation.

Program costs and funding

Since 2015, a total of $77.5 million has been invested in ASRP for programmatic development, technical analyses, and restoration actions, with the vast majority of that funding ($58 million) invested in project development, design, and implementation.

The Chehalis Basin Board will determine in Strategy Phase 2 the recommended long-term level of investment for ASRP efforts, considering the ASRP Steering Committee's recommendation for stable and steadily increasing funding over the next 30 years. In 2021, the ASRP Steering Committee recommended investment of approximately $1.3 billion in the Chehalis Basin over 30 years for aquatic species protection and restoration to address the highly diverse and large geographic expanse of the basin. This investment would support up to 555 miles of river channel restoration and protection over 30 or more years with accelerated implementation of actions like riparian restoration, which will require years to decades to achieve the intended ecological functions.

This level of investment would be on the same scale as funds spent on two other major fish and wildlife programs in Washington – the Salmon Recovery Funding Board ($4.7 billion invested from 1991 to 2020) and Columbia Basin Fish and Wildlife Program ($1 billion invested from 2007 to 2021) – and has a high likelihood of success, as salmonid species are not yet Endangered Species Act-listed and the scale of human development in the Chehalis Basin is far less than in many other watersheds in Washington.

The ASRP Steering Committee also recommended the Board consider funding starting at $20 million per biennium, increasing to $40 million per biennium from 2021 to 2027 to support mid-term implementation of on-the-ground projects (see Table 6). To date, the Board has followed this recommendation. Beyond 2027, the Steering Committee recommends the project implementation portion of the ASRP budget steadily and substantially increase to support increased implementation. Steady and predictable increases in funding will help the Chehalis Basin Strategy work with partners to aggressively restore aquatic species habitat in the basin over the next 30 years.

Table 6. Proposed ASRP project implementation budget, 2021-2027

Biennium	Miles of Channel Restored	Riparian and Floodplain Acres Restored	Proposed Budget (Millions)
2019-2021	3	120	N/A
2021-2023	9	400	$20[a]
2023-2025	15	600	$30
2025-2027	25	1,000	$40

[a] *Funding was provided in 2021-2023 biennium.*
Source: ASRP, 2022.

This recommended program budget represents costs across various categories, including project implementation, program management and support, and monitoring and adaptive management. The biggest contributor to the cost estimates is the construction of riparian and floodplain habitats. Funding the restoration and protection actions at the scales proposed would directly address the most significant limiting factors for aquatic species in sub-basins throughout the Chehalis Basin. In addition to costs associated with riparian and instream restoration and protection, estimates include costs for land use planning and process protection strategies, community involvement actions, and ongoing operations and maintenance.

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 biennium spending plan will support the following ASRP activities:

- **Project Implementation:** A significant portion of the ASRP budget will be used to implement new ASRP projects and include all priority restoration and protection project types focused on at-risk species habitat. This could include, for example, new priority reach-scale habitat restoration projects to protect critical habitat and at-risk species; construction of new restoration projects to protect critical amphibian habitat and create cold water refuge habitat; property acquisitions to protect high quality habitat; and project development and design efforts in immediate priority sub-basins to prepare projects to be construction-ready for funding by the 2023-2025 or 2025-2027 funding cycle.
- **Monitoring and Adaptive Management:** Funding will be also used to advance monitoring and adaptive management studies to inform adaptive management decision making. This

includes status and trends work to track the long-term conditions of the watershed and species response to restoration at the sub-basin and basin scale; project effectiveness work to track the response of habitats at the project level to restoration; and data gaps/hypothesis testing to refine ASRP priorities and test restoration effectiveness for associated aquatic and semiaquatic species at the project level.

- **Program Management and Support:** Staff will use a portion of the total ASRP funding allocations to support overall implementation and participation on committees, including the ASRP Steering Committee, Technical Advisory Group, Regional Implementation Teams, Project Technical Review Team, workshops, site tours, and support of other subgroups. This work also includes Symposium (2024) and community events to build relationships, connect with basin residents, and share progress with residents, practitioners and decision makers; materials sourcing (wood and plants) to supplement project needs and scale up future restoration actions; outreach, education and communication materials and resources to inform, guide and advance restoration and protection needs; and systems/database management to track project implementation and monitoring and adaptive management, and facilitate reporting.

In addition to allocations through OCB, ASRP looks to leverage funding from multiple sources wherever possible and in coordination with many restoration partners and programs. ASRP works with federal and basin partners to make sure funding is leveraged as much as possible. ASRP will continue to coordinate with a variety of programs to mutually benefit projects. Several complementary programs are currently operating within the basin and include, but are not limited to, the following:

- Salmon Recovery Funding Board
- Brian Abbott Fish Barrier Removal Board
- Family Forest Fish Passage Program
- Washington Wildlife and Recreation Program
- Washington Coast Restoration and Resiliency Initiative
- Chehalis Basin Partnership Streamflow Restoration Plan
- Fish Barrier Correction Programs
- Freshwater Mussel Research Partnership

For more information

Visit: https://chehalisbasinstrategy.com/asrp/

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Aberdeen-Hoquiam Flood Protection Project

Project overview

The cities of Aberdeen and Hoquiam are located close to where the mainstem of the Chehalis River empties to the marine waters of Grays Harbor. During a flood event, riverine floodwaters combined with high tides and coastal flooding inundate the area between the Wishkah and Hoquiam rivers north of the Chehalis River and Grays Harbor Estuary. Through the Aberdeen-Hoquiam Flood Protection Project, the two cities are partnering on a coordinated approach to reduce flooding and promote community development.[26]

Flood protection will encourage economic vitality for the region. The flood protection project is comprised of two critical levees: the North Shore Levee (4.1 miles) and North Shore Levee – West Segment (3.8 miles). Once constructed, these levees are expected to protect more than 5,100 properties, 1,350 businesses, and 1,290 jobs. By eliminating flood insurance requirements, the project will result in property owners and businesses saving an estimated $2.2 million annually in required FEMA flood insurance premiums. Additionally, levee construction is expected to generate approximately $10 million in state sales tax. For these two Grays Harbor County communities representing one of the most economically disadvantaged areas in Washington, the resulting protection will significantly reduce the economic burden of flooding for residents.[27,28]

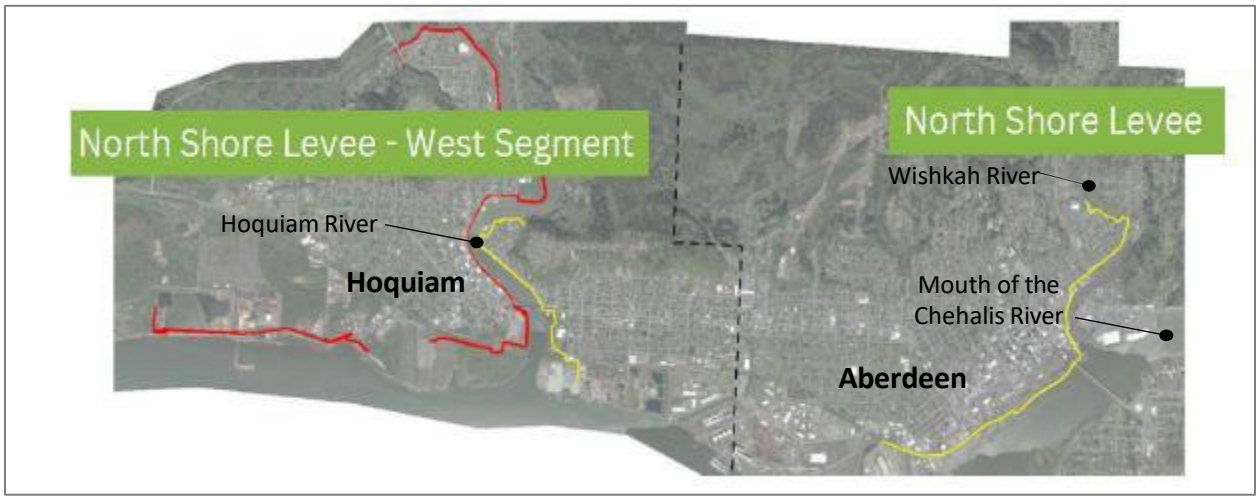

Figure 7. Map of the Aberdeen-Hoquiam Flood Protection Project
Source: City of Hoquiam, 2022.

[26] Aberdeen–North Shore Levee Project website
[27] Chehalis Basin Strategy Storymaps website, Department of Ecology. Last updated February 2023.
[28] Aberdeen-Hoquiam Flood Protection Project fact sheet

The project is being coordinated with the replacement of the Fry Creek pump station, which will control the flow of Fry Creek through Aberdeen during heavy rain and high tides by closing two tide gates and pumping water out into Grays Harbor. Additional efforts on Fry Creek include a restoration project that will restore the creek to a more natural state to manage heavy rain events and reduce street flooding.

Strategy Phase 1 accomplishments

Progress to date has centered on environmental review and design for the project, as well as securing an unprecedented funding package (see below). Studies for this project have been underway since 2016. Both the North Shore Levee and the North Shore Levee - West Segment are progressing towards final design and have engaged in a NEPA environmental review and permitting process, including consultation with the National Marine Fisheries Service (NMFS), which is expected to take up to two years.

Strategy Phase 2 anticipated milestones

The project is expected to complete final design and permitting as well as be bid for construction within the 2023-2025 biennium. Construction of both levee segments is anticipated to begin in 2025, though will be subject to the permitting and NMFS consultation timeline. Levee certification through FEMA is anticipated in 2026. Following levee certification, the current requirement for property owners to carry flood insurance will be lifted.



From left to right: Port of Grays Harbor Deputy Executive Director Leonard Barnes, Hoquiam City Administrator Brian Shay, Congressman Derek Kilmer (WA 6th District) and Hoquiam Mayor Ben Winkelman discussing the alignment of the North Shore Levee - West Segment.
Photo credit: Dan Hammock, The Daily World

Project costs and funding

The total cost for the project, including both levees and the Fry Creek restoration and pump station, is $160.45 million. Over the past several years, the two cities have aggressively pursued funding from multiple sources to pay for project design, permitting, and construction.

State funding has made it possible to secure historic federal investments. The Chehalis Basin Strategy has provided a total of almost $21.5 million toward design, permitting, and construction costs of the flood mitigation project. This funding has been critical for leveraging an additional $99.5 million from federal sources, including 2022 congressional omnibus funding secured through Congressman Derek Kilmer (WA 6th District) and $84.65 million in grants through FEMA's Building Resilient Infrastructure and Communities (BRIC) Program. No other recipient across the nation has been as successful in securing BRIC grants as this project.

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan provides funds that secure the required match for the nearly $100 million in federal support, and will be used for final design, right-of-way permitting, and the start of construction of both levee segments.

For more information

Visit: https://cityofhoquiam.com/aberdeen-hoquiam-flood-protection-projects/

Contact: Brian Shay, City of Hoquiam, BShay@cityofhoquiam.com, (360) 538-3983

Flood Retention Facility/Airport Levee Improvement Project

Project overview

The Chehalis River Basin Flood Control Zone District (FCZD) has proposed the Flood Retention Facility/Airport Levee Improvement Project. FCZD's proposed project is intended to reduce damages from major floods in the upper Chehalis Basin between Pe Ell and Centralia. This would be achieved by temporarily storing flood waters from the Willapa Hills in a flood retention facility (or dam) near Pe Ell and raising the levee and Airport Road at the Chehalis-Centralia Airport.

The proposed facility is designed to retain water in the upper basin in the event of a major flood. It wouldn't, however, stop regular annual flooding or smaller floods on the Chehalis River, nor would it permanently hold water, allowing the river and fish to move at normal rates or smaller floods. In the event of a major flood, the reservoir would store approximately 65,000 acre-feet of water. As river conditions normalize, the facility would slowly release the stored water. The proposed design is considered "expandable" because the facility could be expanded in the future to accommodate more water storage (though an expansion would be subject to a separate environmental review and permitting process).



Figure 8. Rendering of the proposed FCZD project under consideration by the Chehalis Basin Board

Source: FCZD, 2022.

The facility is being relocated and will evaluate measures to avoid, minimize, and mitigate impacts to aquatic and other resources. The project is assessing options to improve fish passage, manage vegetation within the facility and reservoir footprint, and reduce stream temperature impacts**.** The project applicant is designing these measures with the intent to provide "no net loss" to the habitat's current (2019) functions, meaning the same level of habitat function that exists in the basin would be maintained during the facility's construction and operation.

The proposed levee improvements and road elevation will protect key regional infrastructure. The project's airport levee improvements will protect the Chehalis-Centralia Airport, local businesses, and area transportation from major flood damage. In addition to raising the existing 9,500-foot levee around the Chehalis-Centralia Airport from 4 feet to 7 feet, 1,700 feet of Airport Road would be raised to meet the airport levee height along the airport's southern extent.



Figure 9. Map of the proposed raised levee and road near the Chehalis-Centralia Airport
Source: FCZD, 2022.

The proposed project has expected flood damage reduction benefits. If built, the flood retention facility and levee changes would significantly reduce flood damage from Pe Ell to Centralia during major flood events. In total, FCZD's proposed project could save hundreds of millions of future dollars by:

- Reducing floodwater levels on over 4,000 acres
- Eliminating flooding for 43% of homes, businesses, schools, and other structures that would otherwise be inundated
- Eliminating flooding at key locations along State Route 6 and Interstate 5 (I-5), along with reducing the duration of I-5 roadway closure times

Strategy Phase 1 accomplishments

The Washington Department of Ecology (Ecology) and the U.S. Army Corps of Engineers (USACE) are conducting separate environmental reviews of FCZD's proposed project. Ecology released a draft State Environmental Policy Act (SEPA) Environmental Impact Statement (EIS) in February 2020 and USACE released a separate draft National Environmental Policy Act (NEPA) EIS in September 2020. Both draft EIS processes included an initial scoping phase, environmental studies and modeling work, a published draft EIS, and a public comment period. Ecology and USACE are currently reviewing public comments and completing additional modeling and impact analyses to support completion of the final EISs.

What does SEPA and NEPA environmental review entail? The State and National Environmental Policy Acts require state and federal agencies to systematically evaluate proposed governmental decisions or projects by identifying and analyzing associated environmental impacts — referred to as the environmental review process. Agencies must conduct and publish a formal study, or EIS, if a decision or project is determined to likely have significant adverse environmental impacts. It's important to emphasize that no permit decisions can be made until after the environmental review process is complete.

The draft SEPA and NEPA EISs described potential impacts to several resources from the proposed project. Major impacts include:

- Reductions in aquatic species such as spring- and fall-run Chinook salmon, coho salmon, steelhead trout, and lamprey
- Reductions in wildlife species such as marbled murrelet, amphibians, reptiles, and small mammals
- Degraded habitat, including degraded water quality (primarily in the summer months) and riparian conditions
- Impacts on Tribal and cultural resources, including sites of significant spiritual importance
- Loss of recreational opportunities, including 14 miles of kayaking and 13 miles of riverbank fishing

The two independent reviews differed in their approach, specifically in the use of climate change models. However, the reviews found similar significant potential impacts on aquatic species and habitat and water quality. The agencies will consider avoidance, minimization, or mitigation measures to address environmental impacts. FCZD is completing several studies

related to avoidance, minimization, and compensatory mitigation since publication of the Draft EISs for consideration in the Final EISs.

The flood retention facility design is being revised in 2023 with the intent to avoid, minimize, or mitigate any adverse effects to fisheries and historic properties. FCZD has completed geotechnical borings at the proposed site and is consulting with resource agencies and Tribes during the design process.

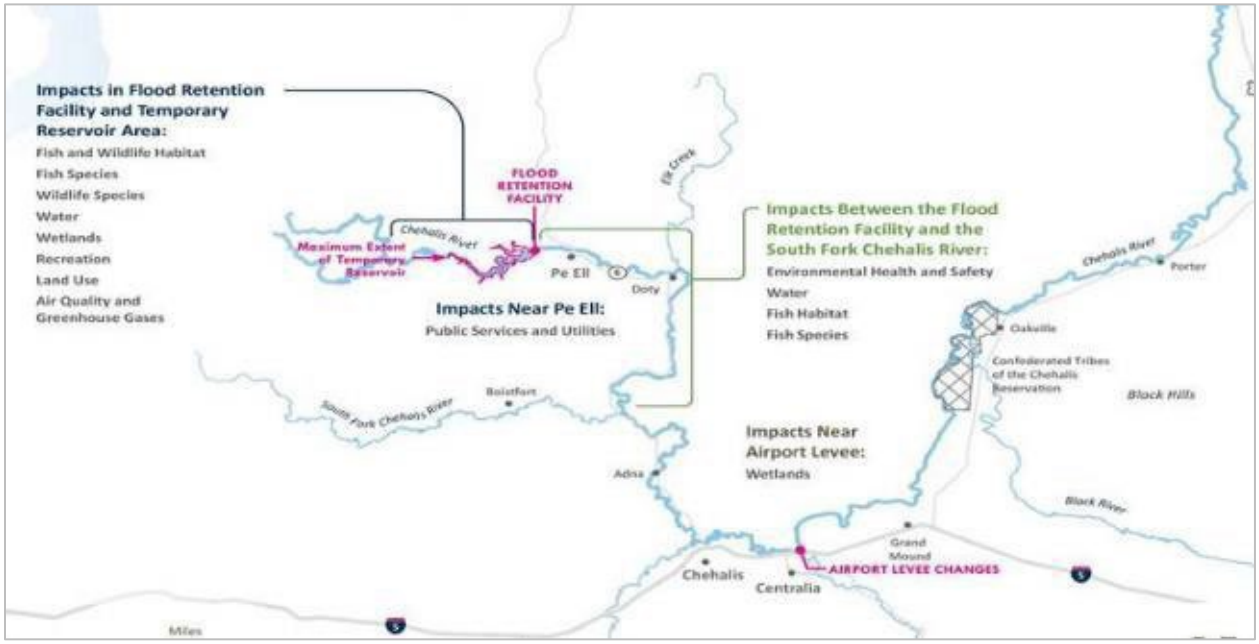

Figure 10. Map of anticipated impacts of proposed flood retention facility and levee improvement
Source: SEPA Draft EIS, 2020.

Strategy Phase 2 anticipated milestones

Ecology and USACE will likely publish their final EISs in 2025 or after. The agencies are waiting for a revised project description from the FCZD which may avoid or reduce impacts. Completion of the final EISs will require advancing hydrology, hydraulics, and reservoir modeling, advancing mitigation design, supporting USACE with Endangered Species Act consultation (for NEPA only), and updating the biological assessment and vegetation management plan.

The Chehalis Basin Board will use the final EISs to help determine whether the proposed project should continue to be advanced as a component of a long-term flood damage reduction approach. If recommended by the Board, the FCZD may apply for the next phase of state and federal permitting, where additional adverse impacts could be identified. The FCZD would be required to propose plans to avoid, minimize, or mitigate any of these negative impacts as requirements of obtaining permits prior to construction. The timeline and outcome of these requirements is uncertain.

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan will support:

- Completion of the final SEPA and NEPA EISs.
- FCZD supervisors and the Chehalis Basin Board's overall decision-making by funding geotechnical investigations, modeling, structure feasibility design, and refined cost estimates and construction schedules.
- Continued engagement with Tribes, state agencies, and other local entities.

For more information

Visit: https://chehalisbasinstrategy.com/proposed-chehalis-river-dam/

Contact:

- For general inquiries: Nat Kale, Office of Chehalis Basin nat.kale@ecy.wa.gov, (360) 706-4277
- For SEPA inquiries: Diane Butorac, Department of Ecology EIS Project Manager diane.butorac@ecy.wa.gov, (360) 407-6573
- For NEPA inquiries: Jenae Churchill, USACE EIS Project Manager jenae.n.churchill@usace.army.mil, (206) 764-5527
- For FCZD inquiries: Matthew Dillin, FCZD Project Manager Matt.Dillin@lewiscountywa.gov, (509)289-9078

Local Actions Non-Dam (LAND) Alternative

Project overview

Guided by a Steering Group made up of Board members, community representatives, and other stakeholders engaged in the Strategy, the Local Actions Non-Dam (LAND) Alternative is an effort to develop an approach to reduce long-term flood damage across the Chehalis Basin as an alternative to—or in addition to—the proposed Flood Retention Facility/Airport Levee Improvement Project. LAND seeks to provide flood damage reduction while considering impacts on local wildlife, residents and businesses, and cost. The proposed projects, programs, and policies are designed to generate equitable outcomes for individuals and businesses living and working in all communities in the Chehalis Basin. Many elements of the LAND Alternative are essential components of a long-term flood damage reduction strategy regardless of whether the proposed flood retention facility is implemented.

The LAND Alternative represents a balance of structural and non-structural solutions. The LAND Alternative comprises a mix of structural solutions, including levees, diversions, and conveyance improvements, and nonstructural solutions to restore the floodplain and reduce or eliminate any remaining flood-damage risks to valuable structures after the infrastructure investments. The flood damage reduction actions consider the extent of potential flooding during a major flood event that could occur in the late-century—in the year 2080. This combination of local actions is designed to:

- Improve Chehalis River waterflow by constructing a diversion and increasing conveyance near the Mellen Street Bridge in Centralia and relocating the Mellen Street Bridge and approaches.
- Reduce flood damage risks to structures by constructing about 22 miles of new levees or expanding existing levees, including near the Chehalis, Skookumchuck, and Newaukum Rivers in and around Chehalis/Centralia and Adna, and daylight China Creek.
- Increase the capacity of the floodplain to store water during smaller flood events by restoring and reconnecting up to 5,000 acres, in coordination with ASRP implementation.
- Protect, raise, or relocate valuable structures at risk of inundation through a voluntary “Safe Structures” program.
- Direct future development away from the floodplain through changes to local land use planning and building code programs.
- Identify transportation system improvements necessary to provide emergency access during catastrophic events and that can be incorporated into local capital improvement programs.
- Speed recovery after flood events through resiliency programs.

The flood damage reduction alternatives are grounded in community values. Chehalis Basin community members met in May 2022 to establish shared values that have served as the foundation for the design of the LAND Alternative:

- Family, culture, heritage
- Natural wonder

- Economic vitality
- Trust, respect, self-determination
- Public safety/resiliency
- Healthy environment/healthy people

Strategy Phase 1 accomplishments

The major focus and accomplishment of Strategy Phase 1 was the development of the LAND Alternative through a values-based, consensus-seeking process guided by a LAND Steering Group.

The LAND Alternative reflects the results of a consensus-based process to develop comprehensive flood damage reduction solutions that support the region's values. In November 2021, the Chehalis Basin Board established the LAND Steering Group to guide the development of the best and most feasible alternative for protection against major and catastrophic flooding to the proposed Flood Retention Facility/Airport Levee Improvement Project. In March 2023, the Steering Group presented consensus recommendations to the Board for its consideration on next steps for the LAND Alternative.

The Steering Group recommendation comprises a mix of projects, programs, and policies. Projects include structural infrastructure solutions, including levees, diversions, and conveyance improvements. Programs include reducing or eliminating any remaining flood damage risks to valuable structures after the infrastructure investments, increasing economic development opportunities, and improving coordination and capacity to manage and maintain flood preparedness. Policies include land use and growth management improvements, updating development and building codes and capital facilities plans, and identifying long-term funding sources. The LAND Alternative is designed to generate equitable outcomes for individuals and businesses living and working in all communities in the Chehalis Basin.

Once implemented, the LAND Alternative is anticipated to deliver to provide an array of flood safety, resilience, and economic development benefits to the region. These include:

- Removal of valuable structures from the risk of flooding during a major flood that could occur in the late century, and protect, raise, or relocate any that remain at risk of flood damage through the voluntary Safe Structures program.
- Reduced damage to agricultural structures through the voluntary Safe Structures program.
- Continued agriculture operations as they are today, with the potential for reduction in flood damage from smaller events through floodplain restoration, flood fencing, and other localized non-structural measures; some crop loss would still be expected from larger flood events.
- Improved access to and protection of critical facilities, including healthcare, schools, police and fire, and infrastructure such as wastewater pump systems and treatment facilities.
- Identified measures to improve access to proposed LAND programs for communities of color and low-income individuals and households.



Figure 11. Rendering of the preliminary LAND Alternative in the Centralia area
Source: MIG, 2023.



Figure 12. Rendering of the preliminary LAND Alternative in the Chehalis area
Source: MIG, 2023.

Strategy Phase 2 anticipated milestones

Depending on the Board's direction, LAND Alternative efforts in the 2023-2025 biennium may include:

- Additional refinement of the LAND Alternative, e.g., additional hydraulic and hydrologic modeling, feasibility analyses, and/or concept exploration and refinement of the overall project.
- Additional technical analysis and design of specific elements of the potential flood damage reduction components, e.g., land and building acquisition, potential flood water storage needs and options, agriculture and mobility projects, or other project elements.
- Identification and implementation of early pilot projects of specific flood-damage reduction solutions that comprise the LAND Alternative.

In Strategy Phase 2, the Chehalis Basin Board is also expected to oversee an independent cost-benefit and socioeconomic evaluation of the LAND Alternative, the proposed Flood Retention Facility/Airport Levee Improvement Project, and potentially other flood damage reduction, aquatic species, and dual-purposed actions across the Strategy. Alongside this evaluation and the Board's subsequent decision-making processes, OCB will identify how its existing programs and activities, particularly the Community Flood Assistance and Resilience (CFAR) program, could evolve and/or scale up to incorporate elements of the LAND Alternative that may go forward.

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan will support three LAND-related activities as described in Phase 2 above: LAND Alternative refinement, design and technical analyses, and pilot projects. If the Board decides to adopt the LAND Alternative in full, the anticipated costs for project construction, maintenance, and operation range from $1.25 to $1.9 billion. Funding will come from a variety of federal, state, and local sources, with specific funding strategies identified in Strategy Phase 2.

For more information

Visit: https://chehalisbasinstrategy.com/local-actions-non-dam-alternative/

Contact: LAND Steering Group Co-chairs

- Todd Chaput, Economic Alliance of Lewis County
  todd@lewiscountyalliance.org, (360) 880-0568
- Glen Connelly, Confederated Tribes of the Chehalis Reservation
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Community Flood Assistance & Resilience (CFAR) Program

Program overview

The Community Flood Assistance and Resilience (CFAR) Program seeks to support local and Tribal governments and residents in the Chehalis Basin by enhancing floodplain management and reducing the potential for flood damage to structures. Administered through the Office of Chehalis Basin, the CFAR program:

- Works with local governments to improve their floodplain management programs, potentially adding communities to FEMA's Community Rating System and reducing flood insurance rates for residents.
- Conducts direct technical assistance and shares information for residents and businesses on how to reduce their exposure to flood damage.
- Provides some financial assistance for basin property owners to floodproof, elevate, move, or remove structures at risk of flooding.

CFAR provides tailored flood assistance to local jurisdictions and residents more quickly than many federal flood programs, including offering guidance on low-cost property protection measures and ways to save money on flood insurance.

Direct flood damage reduction assistance to residents and businesses

Through the CFAR Program, OCB assists renters, landowners, and businesses to identify measures to protect buildings and valuable items from floods. Many measures, including relocating utilities and flood response plans, can be inexpensive and implemented by the owner or renter. OCB also provides some financial assistance for larger building protection measures such as home elevations.



An elevated home in Thurston County.
Photo credit: French Wetmore

Strategy Phase 1 accomplishments

During its pilot phase in Strategy Phase 1, CFAR:

Provided flood damage reduction technical assistance to over 50 residential and commercial properties in the basin, including 26 properties in the 2021-23 biennium. For most properties, OCB prepared site visit reports and/or flood response plans with customized recommendations for how property owners can reduce potential flood damage to their homes or businesses. In other cases, OCB answered questions and shared information to help residents better understand topics such as flood insurance, elevation certification options, drainage issues, and the flood warning system and response actions. In the 2021-2023 biennium, OCB also began providing financial assistance for flood damage reduction projects, and eight home elevation projects are on track for construction in 2023.

Helped local jurisdictions across the basin improve their floodplain management programs with OCB support. OCB and its specialists:

- Prepared floodplain management assessment reports for 12 communities, including Grays Harbor, Lewis, and Thurston Counties.
- Supported city and county floodplain management programs across the basin with improved regulatory standards, ordinance language, flood data, administrative procedures, and reviewing permit questions.
- Conducted training sessions for local floodplain permit officials on regulatory requirements, mapping, data, enforcement, and post-disaster operations.
- Helped several local governments improve their Community Rating System ratings, which resulted in lower flood insurance premiums for properties in their jurisdictions.

Strategy Phase 2 anticipated milestones

In Strategy Phase 2, the CFAR program will move from a pilot phase to a long-term component of the Strategy.

- During the 2023-2025 biennium, OCB will develop a long-term framework for how the CFAR program operates. OCB will engage with key partners on how to design processes and policies for CFAR to meet the needs of the basin most effectively, efficiently, and equitably.
- OCB also expects to expand flood assistance for residents in Phase 2. Regardless of the long-term flood strategy, a robust, voluntary program to floodproof, elevate, acquire, or move structures at risk of flood damage will be important for the basin.
- Additionally, OCB will continue to support local and Tribal floodplain management programs by providing training and customized support on regulatory standards, ordinance language, flood data, and administrative procedures, as well as reviewing unusual permit questions and situations.

2023-2025 spending plan

The Chehalis Basin Board's spending plan in the 2023-2025 biennium will support three main activities:

- Scaling up flood assistance for residents and businesses, within available capacity.
- Continuing support for floodplain managers to administer and improve their floodplain management programs.
- Collaborating with partners to design a long-term program framework.

For more information

Visit:

- For residents and businesses: https://chehalisbasinstrategy.com/flood-assistance/
- For local jurisdictions: https://chehalisbasinstrategy.com/flood-management-programs/

Contact: Kat Dickey, Office of Chehalis Basin, kat.dickey@ecy.wa.gov, (360) 995-3129

Flood Authority Local Projects and Flood Warning System

Program overview

The Chehalis River Basin Flood Authority creates local, on-the-ground solutions that protect basin residents and communities from flood damage and helps them prepare for flood emergencies. Formed via interlocal agreement in 2008 with funding from the Washington State Legislature (HB 3375) following the devastating 2007 flood, the Flood Authority consists of representatives from 13 basin jurisdictions. Together, these jurisdictions prioritize and fund a diverse array of flood hazard reduction projects and use a consensus-based decision-making approach that is informed by science and environmentally appropriate. The local projects funded through the Flood Authority are a smart investment of the state capital budget, providing a positive return on investment through community safety, economic stability, and maintained tax revenue.

The Flood Authority invests in local flood solutions to protect people, property, and infrastructure and to improve communities' readiness and resiliency. Smaller-scale projects funded through the Flood Authority include elevating or moving homes out of the floodplain, building farm pads, and managing erosion with bioengineering techniques. Other Flood Authority projects provide engineered flood protection technologies that move flood water away from priority areas and protect critical infrastructure such as wastewater treatment plants, priority roads, or city centers.



A farm pad is constructed in the Chehalis Basin (left). The Chehalis-Centralia Airport kept dry by the Flood Authority-funded pump during the January 2022 flood event (right).
Photo credit: Office of Chehalis Basin, Steve Banukit/Tanner Mainero

As an example, a 2017 project replaced the Chehalis-Centralia Airport pump and widened its levee; the new pump withstood January 2022 flooding by continuously pumping 10,000 gallons of water per minute for over three days to effectively keep floodwater away from the airport. The pump, which required a $1.1 million initial investment, protected 1,658 jobs, $68 million in labor income, and $186.4 million in business revenue.

In addition to funding projects, the Flood Authority administers the Chehalis River Basin Flood Warning System to provide critical safety alerts to basin residents. With over 300 hydrometeorological data sensors and 13 key river gauges across the basin, the Flood Warning System provides real-time information to track and monitor flood conditions (e.g., rising rivers, weather forecasts, and road closures) and sends email alerts to subscribers which can afford them more time to respond to rising water levels.

Strategy Phase 1 accomplishments

The Flood Authority supported over 50 local projects between 2012 and 2023. In addition to the Chehalis-Centralia Airport pump and levee and Montesano wastewater treatment plant, recent completed project highlights include:

- Reconstruction of Cosmopolis, WA's Mill Creek Dam, an essential community flood control asset with many new fish-friendly features
- Emergency repair of Port of Grays Harbor's Haul Road to protect millions of dollars' worth of critical and irreplaceable jobs-generating infrastructure (water and electric)
- Erosion project along Cloquallam Creek that saved a private property owner's house and septic drainfield, thus avoiding costly environmental contamination

The Flood Authority also launched the Flood Warning System to provide real-time flood information to basin communities. Through this system, the Flood Authority established 13 flood warning gauges, each with its own link, to distribute email alerts for specific river flood levels. These unique gauge alerts improved the Flood Warning System and increased general knowledge about flood flows at different locations in the basin. Today, over 2,400 users take advantage of this tool.

Strategy Phase 2 anticipated milestones

The Flood Authority will fund and help implement ten new Board-approved local projects across the Basin. These projects include planning efforts, such as conducting an infrastructure vulnerability assessment in Boistfort Valley by delineating the South Fork Chehalis' channel migration zone, and infrastructure development efforts, such as constructing a new 10th Street pump station in Hoquiam.

The Flood Warning System will be improved by adding new precipitation and stream gauges, upgrading current gauges, and aligning data outputs. These actions are part of the Basin Gauge Plan Update, which is a five-year plan to (1) bring a deeper, more strategic, and more cost-efficient focus to partnerships with US Geological Survey, National Weather Service, WA Department of Ecology, and other gauge owners; and (2) focus on dual circumstances of flooding and increased tides in the lower Chehalis Basin.

Project Spotlight: Montesano Wastewater Treatment Plant

In the mid-2010s, basin residents were at risk of being exposed to sewage sludge because flooding and riverbank erosion were threatening the Wastewater Treatment Plant in Montesano. The Flood Authority led a collaborative process to develop a bioengineered solution that mimicked natural processes and enhanced aquatic habitat. The project cost approximately $2 million but has averted over $40 million in emergency, clean-up, and replacement measures – an exceptional return on investment. As of 2023, the previously encroaching river is moving away, the riverbank is growing, and habitat complexity has increased, which is beneficial for fish and wildlife.



Log jacks on the Wynoochee riverbank protect the Montesano Wastewater Treatment Plant.
Photo credit: Parametrix

2023-2025 spending plan

The Chehalis Basin Board's spending plan for the2023-2025 biennium will provide continued Flood Authority staffing support and be used to implement the local projects described above.

For more information

Visit: https://chehalisbasinstrategy.com/local-flood-solutions/

Contact: Cheryl Vincent, staff to Chehalis River Basin Flood Authority, cheryl.a.vincent@outlook.com, (505) 927-7155

Skookumchuck Dam Analysis

Project overview

In 1970, the Skookumchuck Dam was built on the Skookumchuck River for the purpose of providing water supply to the downstream Centralia Steam Generation Facility. Currently owned by electrical power generator company TransAlta, this facility has provided coal-fired electricity to the region; however, after over 50 years of operation, it's anticipated to close in 2025. The upcoming closure of the TransAlta generation facility will open new options for operations of the Skookumchuck Dam, and Office of Chehalis Basin staff and consultants have worked with a group of interested parties to investigate ways the dam could be modified to improve fish passage and/or reduce flood damage, without disrupting a vital water supply downstream.

The dam wasn't designed to provide flood damage reduction benefits. The Skookumchuck River can be a major contributor of flooding downstream in Bucoda and Centralia, however the dam was designed and constructed with the sole purpose of providing a steady flow of water downstream and has not been operated for flood storage. Even still, it has periodically provided incidental flood damage reduction benefits, particularly during large flood events when the reservoir has been low, such as in December 2007.



The Skookumchuck Dam from outlet.
Photo credit: Merri Martz

The dam blocks upstream and downstream passage of several fish species. The Skookumchuck River is home to one of three significant spring Chinook salmon spawning areas in the Chehalis Basin, in addition to also supporting steelhead, Coho and fall Chinook populations. Chinook are an economic and culturally important species for the Quinault Indian Nation and the Confederated Tribes of the Chehalis Reservation, as well as a food source for orca whales and Tribal communities. The dam currently prevents most fish from migrating upstream and downstream. Washington Department of Fish & Wildlife currently operates a program to trap steelhead and transport them above the dam for release, however no programs are in place for Chinook and coho salmon.[29,30]

Strategy Phase 1 accomplishments

The major focus in Strategy Phase 1 was to analyze future operations scenarios for the dam.

OCB staff and consultants studied various potential scenarios for operations of the dam to reduce flood damage and/or improve fish passage. The team collected survey data and built models to evaluate options, in collaboration with technical experts representing the cities of Centralia and Bucoda, the Confederated Tribes of the Chehalis Reservation, Quinault Indian Nation, and experts in flooding and aquatic species. An Initial Data Compilation and Analysis completed in September 2021 identified potential near-term options for operation of the Skookumchuck Dam that could benefit flood damage reduction, aquatic species, and associated habitat. Additional modelling was completed in late 2022. These analyses found that:

- Dam removal would allow for free fish passage, restore natural sediment transport, and allow for natural river processes, but is not compatible with maintainingthe existing water rights established as part of TransAlta's water bank.
- Major modifications to the dam could allow operation that reduce downstream flooding and/or improve outcomes for steelhead and Coho, but spring Chinook only marginally benefit from anything short of dam removal.

Based on the analyses, in June 2023, the Board directed OCB to move forward on additional feasibility and design studies that are anticipated to primarily explore three alternative futures for the dam on water rights and on anadromous fish – a "light touch" alternative that keeps the dam and augments fish passage, a "major modification" alternative that augments fish passage and increases discharge capacity to enhance flood management, and an off-channel storage alternative that removes the dam and constructs an alternative reservoir to maintain the water right. OCB will also explore the feasibility of directly piping water from the (existing or new off-channel) reservoir directly to customers or the Chehalis River, to bring Skookumchuck River summer flows closer to their historical volumes.

In addition to engaging the Board on the future of the dam, OCB hosted three webinars to inform basin residents and other interested parties about the studies and provide an

[29] Skookumchuck Dam Study webpage
[30] Skookumchuck Dam Q&A, March 9, 2022

opportunity for questions to be answered. Recordings of these events are posted on the Chehalis Basin Strategy website.

Strategy Phase 2 anticipated milestones

In the 2023-2025 biennium, OCB staff and consultants plan to:

- Further and broaden discussions with key stakeholders to better refine the range of acceptable outcomes.
- Collect information in important areas identified during Board discussion, including off channel storage, direct piping, and habitat/temperature conditions upstream of the reservoir.
- Begin assessing the technical feasibility of options that involve significant reconstruction of the dam.

These analyses will improve the Board's understanding of the impact of the possible alternative futures for the dam. Depending on when the Board is able to agree on a preferred alternative, design could be underway as early as the 2025-2027 biennium. OCB and the Board will continue to coordinate with TransAlta on any additional design, environmental review, and permitting before construction could occur.

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan will support:

- Continued facilitation of stakeholder dialogs with OCB staff to support the Board's further decision-making and recommendations for next steps.
- Additional water rights accounting.
- Assessments of habitat and water temperature upstream of the reservoir, and revisions to the model with the new information.
- Analysis of the feasibility and rough cost of off-channel storage and direct piping of water.
- Beginning geotechnical work to assess the stability of the dam and the surrounding area.

For more information

Visit: https://chehalisbasinstrategy.com/skookumchuck-dam-study/

Contact: Nat Kale, Office of Chehalis Basin, nat.kale@ecy.wa.gov, (360) 706-4277

Erosion Management Program

Program overview

The Erosion Management Program is one of the Chehalis Basin Strategy's integrated programs that provide both flood/erosion damage reduction and aquatic species benefits. The Chehalis Basin Board approved the program's development in late 2021 to address accelerated bank erosion — a significant local flood damage reduction issue identified by the Strategy—and identify opportunities to advance technical work and coordinate with other Strategy efforts.

The program's primary purpose is to manage erosion and improve aquatic habitat conditions by promoting the use of bioengineering techniques and reducing the use of hard bank stabilization practices. OCB manages the program and works closely with local project sponsors to serve willing landowners and address both urgent and long-term erosion concerns. Local project sponsors are typically county conservation districts, local jurisdictions, or Tribes. Bioengineering uses combinations of natural structural materials and live vegetation to establish living systems that strengthen banks, control sediment, and provide both in-channel and riparian habitat. Landowners who participate in the program enter a landowner agreement whereby they commit to supporting the bioengineered solution.

The program protects public infrastructure, private structures, and agricultural lands that are threatened by erosion. Two funding tracks ensure multiple erosion needs are met: urgent/imminent projects, for severe, local erosion that is causing a near-term threat to property; and proactive reach-scale projects, where erosion is advancing, but there is time to identify and fix root causes. A third funding category invests in advancing technical studies that increase the overall understanding of erosion in the basin and provides funding and technical assistance to jurisdictions and Tribes to reduce future development in erosion hazard areas.



An erosion management pilot project on Cloquallum Creek.
Photo credit: Anthony Waldrop

The Erosion Management Program's objectives include:

- Address urgent and imminent erosion threats to eligible structures and lands while also protecting and/or improving habitat conditions.
- Incentivize proactive projects that can address reach-scale erosion concerns for multiple landowners while also providing substantial habitat benefits.
- Provide technical assistance and resources to support basin jurisdictions to reduce future development of structures and infrastructure in erosion hazard areas.

Strategy Phase 1 accomplishments

Pilot projects built interest in basin communities. Prior to the program's official launch in 2023, OCB and its partners administered five erosion management pilot projects in partnership with project sponsors, stakeholders, and landowners. The pilot projects were on Cloquallum Creek, Port of Grays Harbor Haul Road, Satsop River Mile 3.5-4.0, South Fork Newaukum, and two locations along Wildcat Creek (which were supplemented with US Department of Agriculture Natural Resources Conservation Service funds).

A 2021-2022 collaborative workgroup process created a robust program framework that serves landowners and adds value to the Strategy. The workgroup included representatives from state agencies, the basin's Tribes, Thurston and Grays Harbor counties, and Lewis and Grays Harbor conservation districts. Members met monthly to share perspectives and help design the program framework, including aspects related to program management, project criteria, and funding approaches. The pilot projects informed their process.

Strategy Phase 2 anticipated milestones

The Erosion Management Program will begin funding projects in 2023. OCB anticipates accepting project proposals as early as July 2023 and initiating at least one reach-scale erosion project and two or more urgent/imminent projects in the 2023-2025 biennium.

The program will also advance technical studies and mapping efforts. The program will be most effective over the long-term by working with basin jurisdictions to support their land use regulations with technical resources, to reduce future development in erosion hazard areas, and ultimately reduce the need for erosion management. Starting in the 2023-2025 biennium, the program will develop a guidebook for homeowners and contractors and/or coordinate with partners to identify work such as mapping erosion hot spots, channel migration zone mapping, or erosion project monitoring.



Volunteers plant native trees at South Fork Newaukum River restoration site.
Photo credit: Kenna Fosnacht

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan will support administrative costs and the three categories of programmatic efforts: 1) urgent/imminent project fund (projects accepted on a rolling basis); 2) proactive reach-scale project fund (projects accepted on an annual basis); and 3) technical advancement.

For more information

Contact: Nat Kale, Office of Chehalis Basin, nat.kale@ecy.wa.gov, (360) 706-4277

Voluntary Acquisition Program

Program overview

Several programs across the Strategy, including the Aquatic Species Restoration Program (ASRP), the Community Flood Assistance & Resilience Program (CFAR), and the Erosion Management Program, are working with landowners to pursue voluntary property acquisitions. These voluntary acquisitions support both habitat restoration/protection and flood damage reduction goals.

A centralized program within the Office of Chehalis Basin will provide a consistent, efficient approach to scaling voluntary acquisitions. As acquisition activities increase across Strategy programs, OCB expects an increased need for coordinated acquisition support and resources that help navigate standard protocols and requirements while being flexible to adapt to the needs of individual programs.

With the Voluntary Acquisition Program, OCB anticipated goals are to:

- Ensure all Chehalis Basin Strategy acquisitions follow best practices (e.g., for outreach and support for willing sellers, appraisals, environmental assessments, cultural resources reviews, decommissioning, long-term ownership, and maintenance, etc.).
- Clarify roles and responsibilities within the acquisition process, including any appropriate centralized services and resources to support individual program acquisitions.
- Create opportunities for different programs under the Strategy to coordinate funding for acquisitions that might have benefits beyond the originating program.
- Establish a path for acquisition and long-term ownership and maintenance of properties that meets the overall Strategy goals but may not perfectly fit the criteria of any one specific program.

Strategy Phase 1 accomplishments

Strategy Phase 1 efforts have centered on information gathering and initiating development of a programmatic framework. OCB and consultants researched existing acquisition programs within Washington and across the U.S. and held conversations to begin to develop the concept and purpose of the Voluntary Acquisition Program.

OCB convened a workgroup to design the program and any identified resources. In April 2023, OCB initiated an Acquisition Workgroup made up of representatives from state agencies, local government, land trusts, and conservation districts to oversee development of a programmatic framework. The group will use example projects to ground its programmatic development in a real-world acquisitions.

Strategy Phase 2 anticipated milestones

The Voluntary Acquisition Program has two main work elements anticipated for the 2023-2025 biennium, with ongoing support across the Strategy ongoing beyond the next two years.

OCB anticipates launching the Voluntary Acquisition Program and providing support across the Strategy beginning in 2024. With the continued guidance of the Acquisition Workgroup through 2024, OCB will finalize the program design and the development of supporting guidance materials. A draft program framework is expected to be delivered to the Chehalis Basin Board for review and approval in 2024. Subject to Board approval and legislative updates, OCB will stand up the program and begin providing support and guidance to Strategy programs that engage in voluntary acquisitions.

The new program will identify and fund multi-benefit acquisition projects that serve the dual purposes of the Strategy. With the new programmatic framework as its guide, the Voluntary Acquisition Program will identify and fund projects that advance Strategy goals and may not fit perfectly into other, existing Strategy programs**.**

Key Assumptions of the Voluntary Acquisition Program

- **Voluntary:** Acquisitions will be voluntary, with willing sellers.
- **Program autonomy:** Individual programs will continue to make decisions and manage their own acquisition projects. Acquisitions won't be centrally managed.
- **Flexibility:** There will be flexibility for programs to approach acquisitions differently based on differing needs and operational contexts.
- **Support, Not Slow:** The acquisition program will be designed to identify and remove barriers in the acquisition process to increase efficiency and effectiveness, not substantially slow down or disrupt existing acquisition procedures.

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan will support the development of the acquisition program framework and the establishment of the program, including ongoing support for the workgroup process central to program design, and priority multi-benefit acquisition projects.

Note that the budgets of individual programs that engage in voluntary acquisitions (e.g., ASRP, CFAR, etc.) also include funding for acquisition projects with their programs. This individual program-level funding will pay for direct acquisition contracting costs, due diligence services, fees, and relocation financial assistance.

For more information

Contact: Nat Kale, Office of Chehalis Basin, nat.kale@ecy.wa.gov, (360) 706-4277

Initiative for Working Riparian Lands

Program overview

Washington State University (WSU) Extension is creating an interdisciplinary initiative focused on identifying opportunities to adopt "working" riparian buffers on private lands across Washington state. Known as the Initiative for Working Riparian Lands (IWRL), the effort plans to achieve this through a triple bottom line approach that emphasizes the production of agronomic, environmental, and social benefits on riparian lands. The initiative will accomplish its goals by collaborating with local farmers and resource managers to create demonstration sites, promote adoption, and develop the tools, networks, and markets needed to make those agroforestry techniques succeed in a riparian context. While envisioned as a state-wide effort, with the Strategy's support, it's expected to directly benefit farmers in the Chehalis Basin interested in riparian agroforestry.

Developing working riparian lands in the Chehalis Basin will create multiple environmental, social, and ecological benefits. Successful outcomes from the pilot initiative include the advancement of regional understanding of working riparian buffer management, agronomics, and marketing, increased public awareness of the benefits and viability of this practice, and increased adoption on private lands. This will result in improved ecosystem services from riparian lands, including improved fish and wildlife habitat, carbon sequestration, and water quality enhancement, while diversifying and improving economic and environmental resilience of farm operations.

The pilot initiative is expected to result in several outcomes for the basin. Wider adoption of agroforestry in Chehalis Basin riparian zones would:

- Complement ASRP habitat restoration projects.
- Reduce the need for erosion management across the basin over time.
- Improve local buy-in for restoration and agricultural activities.
- Create economic opportunities for the local agricultural community.



Streamside working lands in the Chehalis Basin
Photo credit: Office of Chehalis Basin

Strategy Phase 1 accomplishments

In Phase 1 of the Strategy, WSU Extension and partners developed the IWRL pilot concept, and the Office of Chehalis Basin connected with extension contacts to explore how the initiative could be implemented in the Chehalis Basin to bring benefits for both farmers and riparian habitat.

Strategy Phase 2 anticipated milestones

The pilot initiative is expected to launch in the 2023-2025 biennium across the Washington state and within the Chehalis Basin. Key milestones anticipated include:

- Establishing demonstration sites with farmers in the Chehalis Basin
- Developing plans farmers can use to establish their own multi-benefit buffer zones

2023-2025 spending plan

The Chehalis Basin Board's 2023-2025 spending plan will support a dedicated WSU Extension worker that will promote agroforestry in riparian areas throughout the basin. Activities will include coordinating with conservation districts to identify interested farmers, conducting outreach, and helping any interested farmers to apply agroforestry techniques on their land. This geographic-targeted funding supplements the total initiative budget.

For more information

Visit: https://forestry.wsu.edu/

Contact: Nat Kale, Office of Chehalis Basin, nat.kale@ecy.wa.gov, (360) 706-4277

Conclusion

The Chehalis Basin Strategy is an important model for all of Washington, representing some of the most innovative and forward-looking approaches to integrated water resources management across the state. As communities elsewhere look to collectively design strategies to protect against natural hazards and protect natural systems, the Chehalis Basin Strategy provides a roadmap for how to do so collaboratively. Together, we are charting a course to achievable, scalable, and fundable actions in a manner that is driven by local knowledge and experiences, and in an integrated way that draws on the latest science to protect both people and ecosystems.

Thanks to the support of the Washington State Legislature, in a little over a decade, OCB, the Board, and the array of Chehalis Basin Strategy partners have made significant progress in increasing the resiliency of basin communities, fish, and wildlife in the face of rising flooding dangers, salmon and aquatic species declines and habitat degradation, and intensifying climate change. Over 140 projects and $152 million on-the-ground investments have made the basin more prepared than ever in the face of a changing climate. While much has been accomplished, the coming years represent an important period of decision-making, with several key Board recommendations expected between Q3 2024 and Q3 2026 that will help guide the future of the Strategy and the basin.

OCB and its partners are deeply grateful to the legislators and champions in the basin who advocate for the Chehalis Basin Strategy and the needs of basin communities and ecosystems. As the Strategy continues to gain momentum, continued investments will create even more positive benefits for the region and the state. All those involved in these efforts remain focused on improving the basin for current and future generations of Washingtonians and look forward to when the Strategy's success is fully realized.



Fishing in Grays Harbor.
Photo credit: Office of Chehalis Basin