

DRAFT MEMORANDUM

Date: March 2, 2021
To: Chehalis Basin Board
From: Aquatic Species Restoration Plan Steering Committee
Re: ASRP Information to Inform Long-Term Strategy and 2021–2023 Budget Recommendations

Purpose

The Aquatic Species Restoration Plan (ASRP) Steering Committee is providing this memorandum to the Chehalis Basin Board (Board) as information to consider as part of the Board’s Long-Term Strategy development. This document details important context on the development of the ASRP, progression to current refinements, descriptions of a range of program options for implementation, and a range of funding strategy considerations. ASRP Steering Committee recommendations on program outcomes and 6-year (near-term) funding strategies are being communicated directly to the Board during meetings. This memorandum is organized to provide an objective description of ASRP implementation options for consideration in the Long-Term Strategy.

ASRP Overview

The ASRP presents a detailed, science-based roadmap for restoring habitat and protecting intact ecosystems of aquatic species along the rivers and streams in the Chehalis Basin. The ASRP Phase I document (ASRPSC 2019) serves as the foundation of the current habitat restoration plan and will be updated and published informed by Board guidance in 2021. Without aggressive protection and restoration actions, habitat degradation from climate change and future human development will increasingly threaten the viability of aquatic species in the Chehalis Basin. If meaningful actions are not taken, the best available science projects devastating effects—

- **3,400+** miles of stream
- **Numerous species** of salmonids and native fish
- Only one of a few remaining basins in Washington where **no salmon species are listed** as threatened or endangered
- **Most diverse array of amphibians** in the state
- **Significant opportunity** to restore ecosystem resiliency

for example, the basin’s spring-run Chinook salmon, an important food source for tribal communities, could be extinct by the end of the century. Coho and chum salmon and steelhead are economically and culturally important species, and the Chehalis Basin provides for robust commercial, tribal, ocean, and recreational fisheries. Other native species such as Oregon spotted frog are limited to one last stronghold in the state that includes the Chehalis Basin and provide intrinsic value to the ecosystem beyond direct economic benefit to humans. This bleak outlook demands urgent attention, but it also presents a historic opportunity to avoid Endangered Species Act (ESA)-mandated recovery measures and

act on our stewardship responsibilities to ensure a brighter future for native salmon and aquatic species, along with the communities who depend on and benefit from them.

The ASRP portrays a comprehensive suite of necessary actions based on recent coordinated scientific data collection and analysis unprecedented anywhere in Washington. A policy-focused Steering Committee composed of representatives from the Quinault Indian Nation, the Confederated Tribes of the Chehalis Reservation, the Washington Department of Fish and Wildlife, the Washington Department of Natural Resources, the Washington Department of Ecology's Office of Chehalis Basin, and the Chehalis Basin Lead Entity for salmon recovery oversee program development and implementation. The Steering Committee has worked together with farmers, foresters, conservationists, other state agencies, local governments, and local landowners to understand opportunities and challenges and to inform development of the ASRP. The Committee is supported by technical committees comprised of restoration experts from around the region. 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.

ASRP Benefits, Impacts, and Cost Estimates

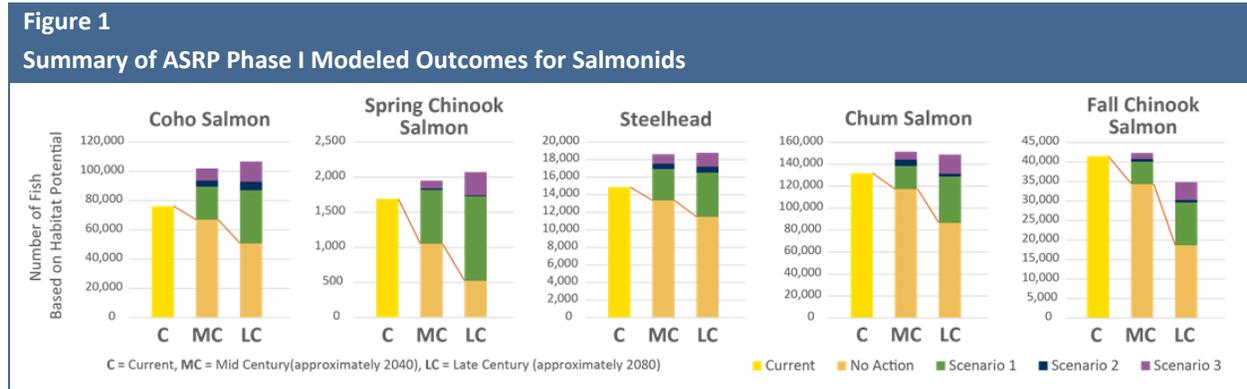
Phase I Background

Phase I of the ASRP, released in November 2019, provides projections of habitat conditions that could be achieved under three additive restoration scenarios, which were developed using a strategic prioritization process. The prioritization identified habitat areas within each of the basin's ecological regions that have the best opportunities to improve species performance and increase habitat quality and capacity. These scenarios aim to build differing levels of species and habitat resiliency into the basin to combat future climate and other stressors, summarized as follows:

- ASRP Phase I Scenario 1: Protect and enhance existing core habitat areas for all aquatic species.
- ASRP Phase I Scenario 2: Build on Scenario 1 with the additional focus of restoring the best opportunities to benefit multiple species.
- ASRP Phase I Scenario 3: Build on Scenario 2 with an added focus of restoration to increase spatial and life history diversity and distribution of species throughout most of the basin.

Actions proposed under the range of scenarios would result in varying levels of restoration of impaired processes throughout the basin and the protection, restoration, and creation of habitat in strategic locations. The actions in the ASRP Phase I document are expected to result in substantial positive outcomes for the range of aquatic species within the river basin compared to no action. Modeled outcomes for salmon and steelhead are summarized in Figure 1 and further detailed, along with general expected outcomes for native species other than salmonids, in Section 7.3 of the ASRP Phase I document (ASRPSC 2019). Modeling assumed that all restoration treatments were in place in 2019 when

model exercises occurred, and results show the expected benefits of the completed restoration. It will take decades to implement all the actions proposed, and while select benefits are realized immediately, some benefits will take several decades after projects are completed to be realized. Consequently, the actual benefits to the species will likely be less than the modeled estimates.



Key additive outcomes for salmon and steelhead associated with each Phase I scenario are summarized from the analysis as follows:

- Scenario 1 would reduce the potential declines in habitat and species that would begin to occur from climate change in the mid-century time frame and result in modest gains over current levels for coho salmon, spring-run Chinook salmon, chum salmon, and steelhead and also provide habitat to sustain coho salmon, spring-run Chinook salmon, and steelhead populations by late century. Fall-run Chinook salmon would still experience declines by late century. However, when compared in the future with a No Action scenario, Scenario 1 would provide moderate to substantial gains to all salmon species and steelhead by both mid- and late century.
- Scenario 2 provides additional modest benefits beyond the Scenario 1 projections for coho salmon, chum salmon, and steelhead in mid- and late century. Scenario 2 includes important smaller sub-basins. When compared to a No Action scenario, Scenario 2 would provide modest additional gains to current populations of coho salmon, chum salmon, and steelhead by both mid- and late century. Spring- and fall-run Chinook salmon would have only slight additional benefits over Scenario 1.
- Scenario 3 provides more substantial gains for coho salmon, spring-run Chinook salmon, chum salmon, and steelhead in mid- and late century. Scenario 3 also increases spatial diversity for coho salmon, fall-run Chinook salmon, and steelhead. When compared to a No Action scenario, Scenario 3 would provide substantial gains to current populations for coho salmon, spring-run Chinook salmon, chum salmon, and steelhead in mid- and late century. Fall-run Chinook salmon would still experience declines by late century.

It is important to note that species abundance is only one measure of salmonid population viability. Productivity and spatial and life history diversity are important components that contribute to the long-term sustainability and resiliency of a population. Scenarios 2 and 3 aim to influence these factors by restoring additional areas of the basin that could be highly productive (lowland, low-gradient streams with wide floodplains and beaver ponds). One of the key concerns with spring-run Chinook salmon is that their spatial distribution is so narrow (limited to the Skookumchuck River [approximately 40%], Newaukum River, and mainstem Chehalis River above the Newaukum confluence) that an extreme weather event could destroy an entire year class of fish. This highlights the importance of spatial distribution, only achieved through Scenario 3, to reduce risk of localized extinction. Scenarios 2 and 3 also include targeted actions to benefit amphibian and non-salmon species (not represented in the model outcomes shown in Figure 1). Providing high-quality habitats and refugia for all of the aquatic species of interest across the basin provides much greater certainty of the long-term sustainability of any one species.

Broadly, habitat outcomes projected to occur from implementing each of the Phase I scenarios are focused on the following:

- Restoration and protection of riparian lands on small, medium, and large streams and rivers and wetland habitats that provide habitat connectivity and seasonally suitable habitat for species
- Increased density of stable in-channel wood structures that provide pools and other habitat improvements
- Restoration of connections to floodplain aquatic habitats (side channels, ponds, and wetlands) that provide hyporheic exchange and rearing habitats for juvenile fish
- Protection of aquifer recharge areas and cold springs to provide the cooler water salmon need to survive in hot summer months
- Protection of wetlands, stream-adjacent unstable slopes, and other critical areas to promote natural riverine processes
- Increased unique habitats such as depressional wetlands to promote groundwater infiltration critical to cool water temperatures and build ecosystem resiliency to climate change

Progression to Refined Scenario 3

The three ASRP Phase I scenarios were developed to identify the range of investment necessary to achieve the sustained restoration of vital ecosystem functions and maintain viable species populations. Scenario 3 provides greater certainty for the long-term survival and productivity of the species than the other scenarios. However, from stakeholder and public feedback on the ASRP Phase I document, there was substantial interest in improving the outcomes from Scenario 3, particularly for spring- and fall-run Chinook salmon and promoting ecosystem resiliency to climate change. Thus, in 2020, refinements to Scenario 3 were developed to further improve the projected outcomes and species performance. These refinements were informed by public comment suggestions on the ASRP Phase I document, new

scientific data and monitoring outcomes, and data collection from two habitat models. Revisions for the refined Scenario 3 included the following:

- Adding or removing specific geographic areas from the scope of the ASRP (including adding the Grays Harbor estuary) based on projected species productivity and predicted changes in habitat, reviewed at a finer scale than in Phase I.
- Increasing the amount of needed restoration in a few key locations, particularly for spring-run Chinook salmon, based on the added benefit that could be provided as shown in multiple models. This includes a 25% increase in proposed restoration in the Skookumchuck River to provide additional spawning and rearing habitat for spring-run Chinook salmon.
- Adding recommended actions such as beaver ponds in some areas to re-engage groundwater infiltration and help cool water while providing rearing habitat for juvenile salmon.
- Changing emphasis on specific actions (such as riparian restoration) in some areas to benefit multiple species.
- More focused targeting of actions for amphibians, non-salmon fishes, and other aquatic wildlife in specific geographic areas such as headwater streams.

Proposed Program Options: Benefits, Impacts, Costs

Building from the work completed for the Phase I plan and refinements made in 2020, the ASRP Steering Committee scoped three program options for public and Board consideration in a long-term funding strategy: No Action, Mid-Level, and Full-Level Options. All actions proposed are expected to have multibenefit outcomes, including but not limited to habitat improvements for aquatic species, increased natural riverine functional processes, and greater exchange and storage of water throughout the system. Maps summarizing the Mid-Level and Full-Level options are in Figures 2 and 3. Cost ranges are provided for the Mid-Level and Full-Level program options (Table 1). These cost ranges are informed by low and high unit costs for each project element program-wide and are carried forward as ranges to be refined in future biennia. Estimates are all derived from actual previous project costs in the basin and region. Program costs are in 2020 dollars and do not account for inflation or cost of living increases. The options are summarized as follows:

- A No Action Option would rely on existing habitat restoration programs in the basin absent of the ASRP (e.g., Salmon Recovery Funding Board, Fish Barrier Removal Board, Washington State Department of Transportation culvert injunction efforts, and Washington Coast Restoration and Resiliency Initiative). Goals of relevant existing programs are habitat restoration, access to habitat, and protection focused on salmon recovery. These programs include the Chehalis Basin but also apply to a much larger area within the state. Each are limited by available budget, future certainty of funding both to the program and the Chehalis Basin, and competitive focus on projects ready to go each year. Projected outcomes of no action are summarized in Figure 1 and show that funding and implementation at the historic pace have not shown improvements in salmon populations and instead predict substantial declines for all salmon and steelhead

species. The ASRP Steering Committee has emphasized that taking no action on aquatic species habitat would not meet the goals of the Chehalis Basin Strategy.

- The ASRP Steering Committee scoped a Mid-Level Option at a reduced level of effort compared to the Full-Level option to exemplify potential level of effort and projected outcomes. The Mid-Level option is scoped to restore approximately 230 miles of river and stream habitats in the basin and is generally comparable to Scenario 1 from Phase I, although there would be a greater emphasis on at-risk species because of the work completed in 2020 showing how important this is in sequencing restoration. Scenario 1 modeling primarily demonstrated a potential to halt the decline in salmon species by 2040, but it did not provide significant increases in abundance from suitable available habitat. The comments received on the ASRP Phase I document indicated that the level of effort might not do more than maintain existing populations. Goals for this option are as follows:
 - Halt the decline in habitat suitability for the most at-risk species (particularly spring-run Chinook salmon and Oregon spotted frog) and reduce declines for the other salmon species.
 - Promote resiliency to climate change (particularly high temperature and low flows) in the upper basin that also benefits all downstream reaches.
 - Protect and enhance unique habitats and the highest quality core habitats for multiple species.

Projected outcomes are shown in Table 1. While this level of effort would provide significant benefit compared to a No Action Option, limitations and uncertainty exist due to the focus on core areas for at-risk and multibenefit species. This creates challenges for species viability into the future as more extreme weather events could pose increased threat to already small populations of species that currently occupy only very limited areas in the basin. This concern applies to entire species such as Oregon spotted frog and spring-run Chinook salmon, as well as the genetic complexity of species populations like coho salmon and steelhead.

- The Full-Level Option includes Scenario 3 as well as refinements made in 2020 to increase the projected benefit for native aquatic species. This program option would implement up to 550 miles of habitat protection and restoration, which in turn would restore approximately 16% of basin river and stream habitats. The refinements include the estuary and smaller tributaries with the best potential to improve temperature, flows, and species performance. These additional areas are intended to provide greater certainty that substantial gains in salmon, steelhead, non-salmon fish, amphibians, and other aquatic species can be realized, including fall-run Chinook salmon. Goals for this option are as follows:
 - Halt the decline in habitat suitability for all native aquatic species of interest and provide substantial gains above existing populations.
 - Promote resiliency to climate change (high temperature, low flows, and high flows) throughout the basin.
 - Protect and enhance the sub-basins that are most likely to provide significant productivity and spatial and life-history diversity.

- Increase confidence in predicted outcomes being achieved.

Projected outcomes are shown in Table 1. Benefits at this level of effort include increases in all salmon and steelhead species with significant increases in some salmon populations through habitat enhancement and protection. Adding effort in the estuary will provide additional enhancement in habitat used by all salmon and steelhead species at some point in their lives, particularly fall- and spring-run Chinook salmon. Feasibility of implementation at this scale has uncertainty due to the high level of private landownership in the basin. Success of implementation at this scale is reliant on landowner partnerships.

Table 1
Benefit and Cost Summary of Options

OPTION	COST RANGE ¹	OUTCOMES
No Action	N/A	<ul style="list-style-type: none"> • No added costs in the near-term but likely expensive federal regulatory compliance costs if spring-run Chinook salmon are ESA listed • Loss of current program momentum and partnerships • Anticipated continued decline of species
Mid-Level	\$300M to \$600M	<ul style="list-style-type: none"> • Protection and enhancement of existing high-quality and core habitats in focused areas • Maintenance of existing populations of aquatic species (although still highly uncertain for spring-run Chinook salmon viability)
Full-Level	\$600M to \$1.3B	<ul style="list-style-type: none"> • Protection and enhancement of existing high-quality and core habitats across the basin • Improvement of spatial and life-history diversity to provide resiliency for species • Substantial gains for all native aquatic species (including reducing uncertainty for spring-run Chinook salmon) • Enhancement of ecosystem resiliency to climate change to benefit species and communities

Notes:

1. Cost ranges are provided in 2020 dollars. Cost estimates are for the entire program and are not specified by funding source.

N/A: not applicable

Figure 2
Mid-Level ASRP Option

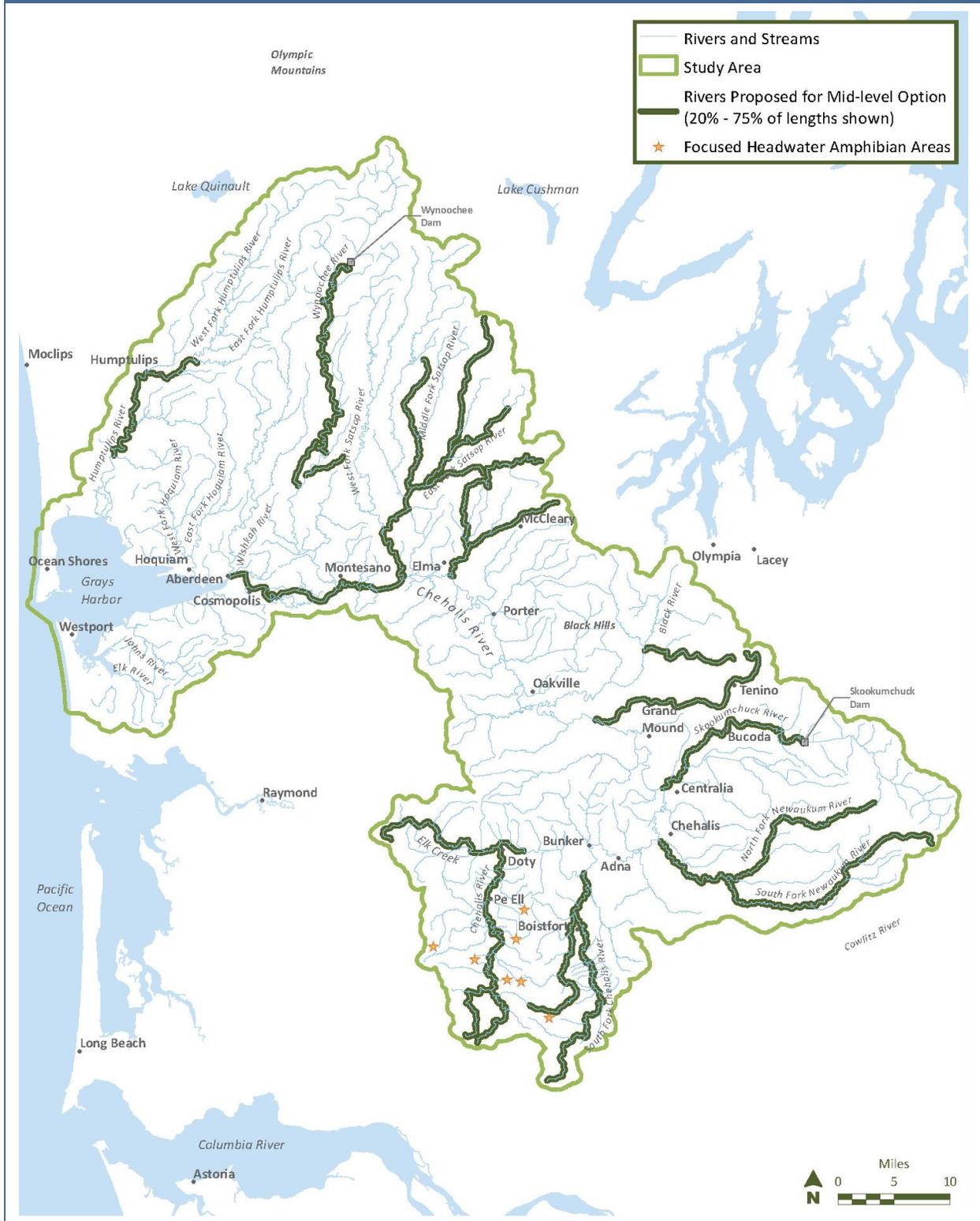
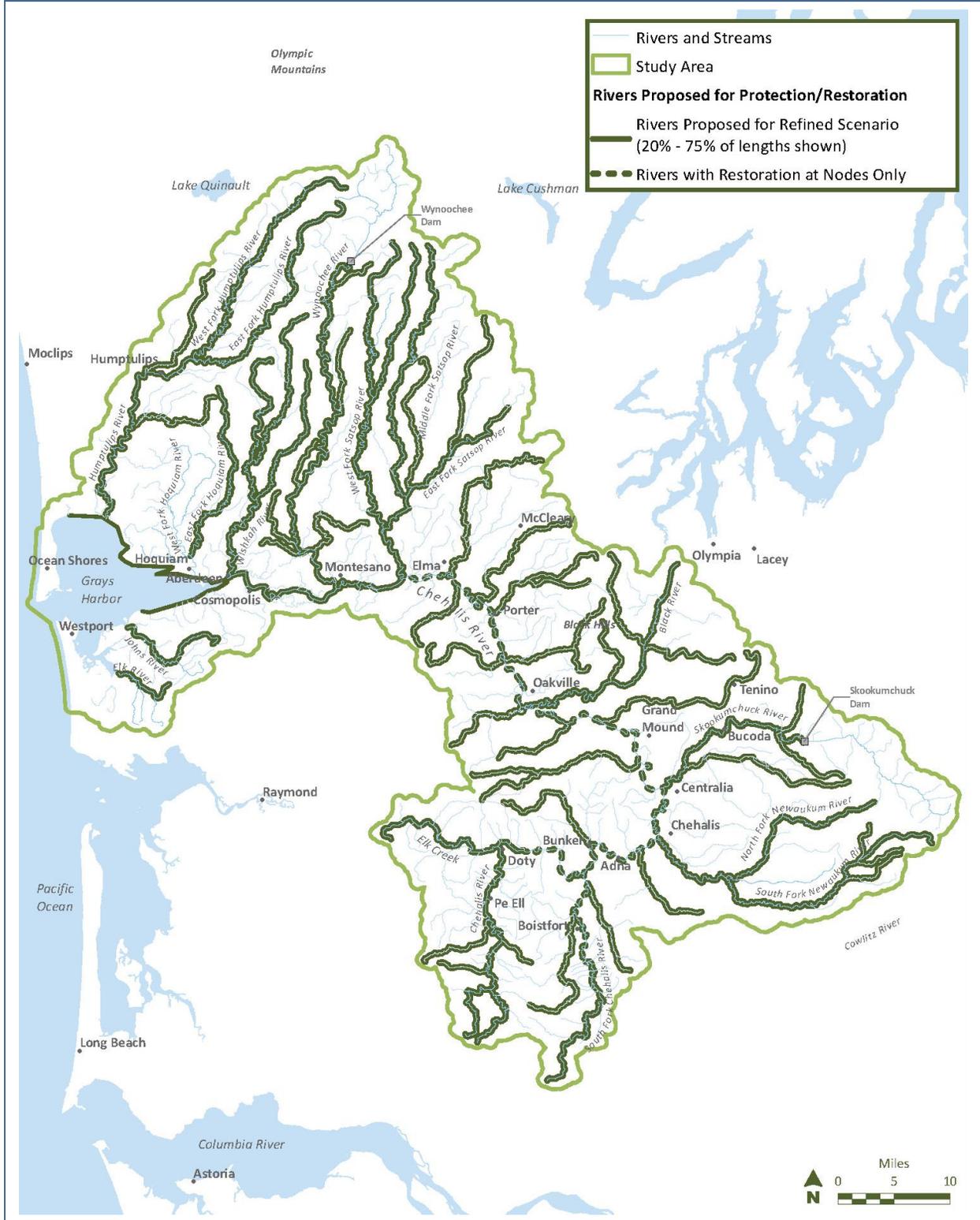


Figure 3
Refined ASRP Scenario to Protect Core Habitats and Expand Distribution



Implementation Phasing and Key Milestones for Board Evaluation

Summary of Implementation Periods and Phasing Recommendations

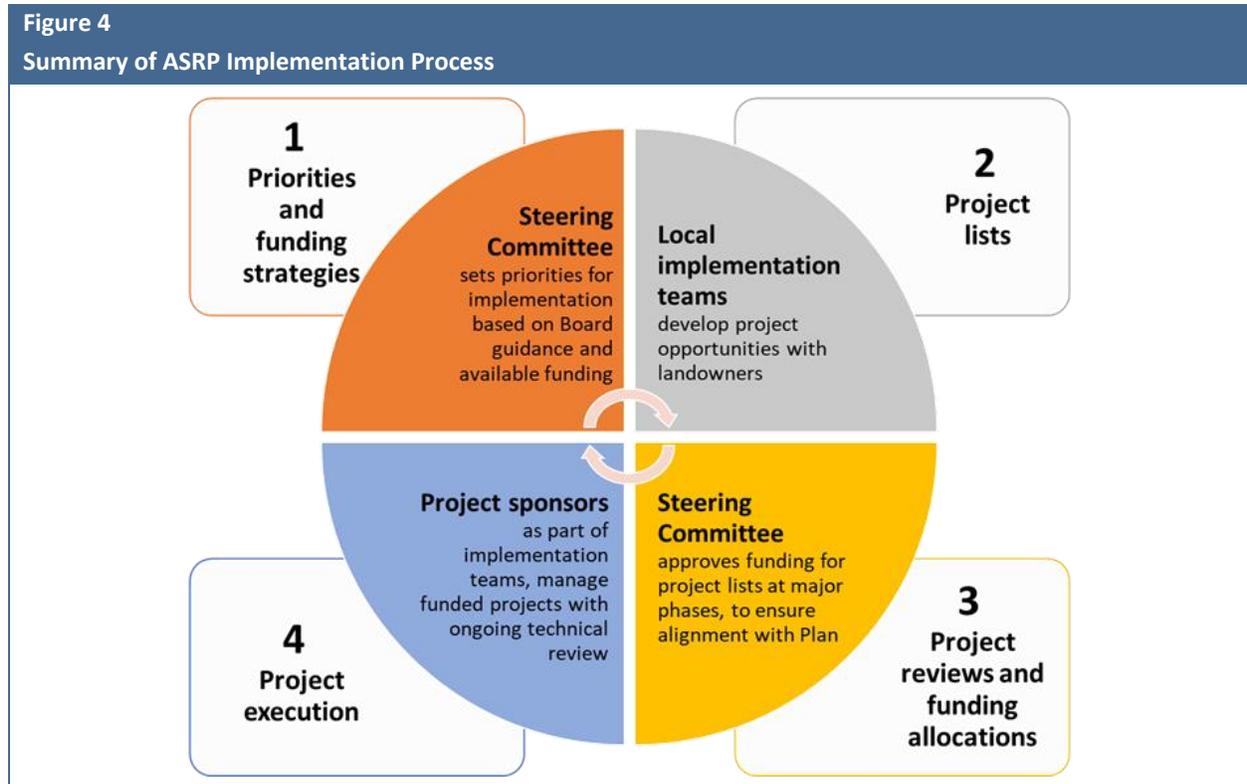
Ten-year implementation time periods were selected to support project planning and phasing and to allow enough time for ASRP monitoring to quantify and document the biological responses in each time frame. Note that the benefits of the ASRP will not all be immediately realized post-construction and some benefits will take time to establish, sometimes continuing beyond the 30-year implementation time frame (e.g., riparian plantings will grow, in-channel wood structures will retain wood and gravel, and monitoring and adaptive management activities will continue as appropriate). The goals of each of the three 10-year implementation periods are summarized as follows:

- The near-term actions (years 1 through 10) are intended to address the priority habitat restoration needs of at-risk species including spring-run Chinook salmon, Oregon spotted frog, and coastal tailed frog. They are also intended to protect key unique habitats such as groundwater springs and functioning wetlands and initiate long-lead-time actions like growing trees in key locations, which will take time to realize the benefits. Lastly, actions will focus on monitoring key research topics to guide and refine later-term actions. Restoration in the upper basin is emphasized due to at-risk species' distributions, and restoring ecological processes here also promotes resiliency through increasing groundwater exchange and floodplain water storage, which then supplements low flows to downstream reaches.
- In the mid-term period (years 11 through 20), the recommendations continue a focus on long-lead-time actions and protecting and restoring productive core habitats that support multiple species. The spatial distribution of the recommended actions broadens to include more regions in the lower and middle basin. Habitat restoration actions in the Grays Harbor estuary are initiated, and restoring access to quality habitat through passage barrier corrections is emphasized. Continued actions are recommended to address the effects of future climate change and human population growth in the region. Targeted learning may continue in the mid-term period depending on the results of studies conducted and actions taken in the near-term period.
- In the long-term period (years 21 through 30), the trend of broadening the spatial distribution is expanded throughout the basin. Actions are directed at restoring productive core habitats throughout the Chehalis Basin that support multiple species and restoring connectivity among aquatic habitats through barrier corrections. Finally, continued actions are recommended that address the effects of future climate change and human population growth in the region.

Implementation Structure and Processes

The ASRP is larger than any restoration program currently operating in the basin and requires greater participation and capacity from a wide range of agencies, restoration and conservation organizations, design and construction firms, materials suppliers, supportive landowners, and other partners. As the

ASRP shifts from planning to implementation, it is paramount to build an effective management and implementation framework to provide a clear and consistent process and funding source for project sponsors and landowners to develop and implement projects that meet ASRP goals within the ambitious timeline needed to achieve the outcomes. The ASRP has undergone a focused implementation planning effort to reduce uncertainty and create an efficient process for successful implementation. The proposed process is summarized in Figure 4.



The ASRP proposes to use this project facilitation model to identify, fund, and implement priority projects in partnership with willing landowners. This process will be supported by a dedicated capacity for technical project reviews, permitting, and contracting. The process will be overseen by the ASRP Steering Committee and the Office of the Chehalis Basin, acting on behalf of the Board, which will be responsible for all program funding decisions. This process is intended to begin in the 2021–2023 biennium. While new processes are being put into place, the ramp-up of implementation capacity and the efficiency outcomes of new process will take 2 to 4 years to realize (more in some cases). Due to the up-front investment and public awareness necessary to be successful, it is vital for the program to have an agreed-upon funding strategy for at least 6 years to implement processes and realize the efficiencies.

Key Milestones for Evaluation and Proposed Metrics

The ASRP Steering Committee proposes key milestones for evaluation of the ASRP during implementation. These evaluations will be informed by information gathered through the Monitoring and Adaptive Management Program through agency and project sponsor monitoring capacity. Major milestones are proposed at 5 years (2026) and 10 years (2031) into the implementation period. An evaluation at 5 years provides the Board a mid-biennium look at the program and the ability to modify the next biennium budget as a direct outcome. These assessments will provide structured opportunities for the Board to consider how the ASRP is achieving its goals and provide guidance on modifications for future implementation. These evaluations will also be important checkpoints for Board guidance on the ASRP budget as part of the Chehalis Basin Strategy. Checkpoints at 5 and 10 years will allow the Board to consider near-term funding packages and adjust as outcomes are realized or if priorities change through time. Evaluation metrics are proposed as follows:

- **Landowner willingness outcomes (5- and 10-year milestone evaluations):** Landowner willingness outcomes will be tracked in terms of the successful partnerships created to implement projects through the ASRP. Each focal area for implementation will have a concerted landowner outreach and project development effort. The number of landowners that have expressed interest in being part of the design process and the number of participating landowners each year and over time will be available for Board review, as it is a cornerstone of successful ASRP implementation.
- **Project implementation pace (5- and 10-year milestone evaluations):** Evaluating the rate at which projects are developed, designed, and constructed will allow the Board to understand what the program is capable of ramping up to in the next stage of implementation. The ASRP Steering Committee plans to ramp up scales of magnitude and shorten timelines for project implementation over time. Information on the time required to take a project from start to finish will be tracked through the regional implementation teams and biennial ASRP Steering Committee funding recommendations. The pace of project implementation and number of miles constructed per year will be a key milestone to identify if changes to program funding, processes, or management are necessary.
- **Project actual costs compared to projected costs (5- and 10-year milestone evaluations):** Tracked at each major phase of project development and execution, the real project costs will be compared to projected costs each biennium, allowing the ASRP Steering Committee to refine budget recommendations and track estimate accuracy over time. Cost comparisons should be a major evaluation element for the Board to understand if changes in ASRP funding are warranted.
- **Project effectiveness monitoring outcomes (5- and 10-year milestone evaluations):** Confirmation whether project actions are achieving the intended results in terms of physical habitat improvements will be tracked and adjustments will be made at the biennial timescale as feasible to improve effectiveness. Example metrics include understanding whether specific

restoration actions (such as placement of sediment wedges or large wood structures in target-size streams) create the expected amount of thermal refugia habitat during low flows through temperature and water quality monitoring. Board evaluations will look at whether the intended habitat improvement goals are realized over time.

- **Status and trends monitoring outcomes (10-year milestone evaluation):** Tracking the biological response to physical improvements in habitat is difficult and will take time to understand trends. Population monitoring as well as tracking the health and resiliency of the watershed will be part of this effort, and the Board should understand how physical improvements are impacting species populations at the basin level through and after implementation of the ASRP. For instance, salmon and steelhead annual species surveys will give insights as to whether populations are stabilizing, increasing, or continuing current negative trajectories over time. Additional information could be gathered by the annual co-manager guidance on harvest predictions, which can give a limited look to how the co-managers are responding to population status predictions. This information does not indicate the effect of restoration but does indicate how other actions may be interacting with the work of the ASRP.

While many of the metrics are the same for each major evaluation, specific information will differ between the 5- and 10-year evaluations. While the 5-year evaluation will provide important insights on the success and lessons learned of program ramp-up as well as initial project effectiveness, the 10-year evaluation will provide a more comprehensive look at program implementation ramp-up and longer-term species trends.

2021–2023 ASRP Budget Recommendations

Steering Committee Biennium Budget Recommendation

The ASRP Steering Committee recommends to the Board an ASRP budget of \$33 million dollars for the 2021–2023 biennium. This program budget is the same across all longer-term program funding options. The ASRP Steering Committee recommends keeping investment level or as close to level as possible to maintain momentum as the program fully transitions to implementation and away from planning in the 2021–2023 biennium. This level investment will allow the ASRP to strategically invest in implementation support items to increase certainty of future success of projects, landowner willingness, and an increased pace of implementation.

Summary of Costs and Refinements

Cost estimates incorporated into the recommended program budget have been refined from the ASRP Phase I estimates using real project detailed cost information from the Early Action Reaches, 2020 ASRP Grant Round, and other restoration and protection program examples in Western Washington (Table 2). Example refinements include a slight increase in the range of costs for acquisitions and easements and a slight decrease in the range of costs for large wood placement for medium-sized rivers.

Table 2
2021–2023 Program Budget

BUDGET CATEGORY	ESTIMATED COST	DESCRIPTION	EXPECTED OUTCOMES
Projects	\$22.6M	Includes all priority restoration and protection project types focused on at-risk species habitat	<ul style="list-style-type: none"> • Up to 13 miles of new reach-scale habitat restoration • Up to five new amphibian habitat restoration projects • Up to six protection acquisitions • Up to 16 miles (up to eight partial FTEs supported) of project development efforts in focal sub-basins to jump-start projects funded in 2023–2025 for construction
Implementation Support	\$6.2M	Includes strategic material sourcing for future project needs, local implementation teams, project review capacity, permitting/cultural resources support, and monitoring and adaptive management studies	<ul style="list-style-type: none"> • Restoration material bank initiation to support efficient project implementation • New implementation structure and processes • Capacity to increase pace of project implementation • Monitoring outcomes to track progress
Program Management	\$4.2M	Includes committee participation, contract management, staff support, and publication of ASRP materials led by the Steering Committee to support implementation	<ul style="list-style-type: none"> • Revised ASRP document detailing priorities, sequencing, and near-term goals • Ongoing oversight and adaptive management • Public events to share knowledge and lessons learned from implementation

ASRP Funding Strategies and Process for Developing Future Costs

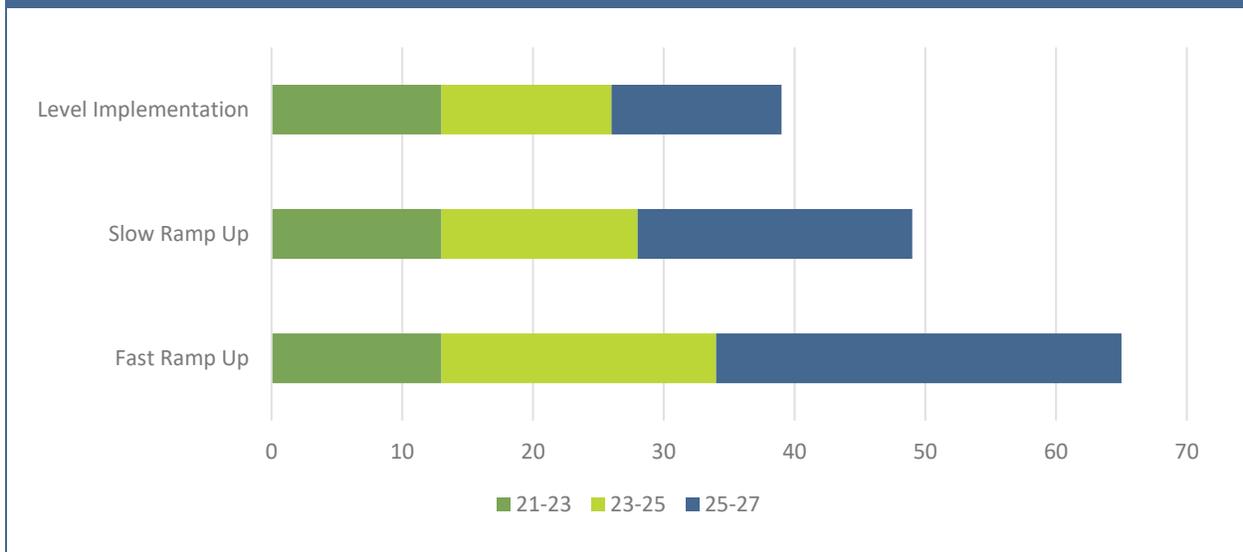
Near-Term ASRP Funding Strategies and Expected Outcomes

The ASRP Steering Committee has developed three near-term funding strategies for the Board’s consideration (Table 3 and Figure 5). These strategies will determine the pace in which project implementation can occur as well as the magnitude of expected results of ASRP actions. “Near-term” is defined as 6 years, or three biennial cycles from 2021 to 2027. Each funding strategy is communicated in terms of biennial budget, total 6-year spending, potential 6-year total miles restored, and potential 6-year total acres restored and/or protected. All proposed funding strategies have been developed to enable the Board to evaluate progress at 5 years into program implementation (2026) and adjust magnitude based on ASRP goals.

Table 3
Summary of Proposed Funding Strategy, Biennial Budgets, and Total Spending

FUNDING STRATEGY	2021–2023 BUDGET	2023–2025 BUDGET	2025–2027 BUDGET	TOTAL 6-YEAR SPENDING
Level Implementation	\$33M	\$33M	\$33M	\$100M
Slow Ramp-Up	\$33M	\$40M	\$50M	\$125M
Fast Ramp-Up	\$33M	\$50M	\$70M	\$150M

Figure 5
Total Example 6-Year Mileage Outcomes for Each Proposed Near-Term Funding Strategy



Level Funding Strategy: Level funding is the sustained ASRP budget of \$33 million dollars each biennium through 2027 (Table 3). The total 6-year spending on ASRP would be \$100 million dollars. This funding strategy is expected to fund up to 40 miles and 3,600 acres of riparian and floodplain habitat restoration and protection in the first 6 years of program implementation. These 40 miles of habitat restoration and protection in the next 6 years will enhance core habitats to promote viability of these habitats into the future. For example, it is expected that this magnitude of implementation would include 1,500 wood structures installed in priority streams. This, in turn, will provide critical enhancement of existing spring-run Chinook salmon holding and spawning habitats. Deep pools created by wood structures will also benefit steelhead and coho salmon for summer rearing and escaping high summer water temperatures. In addition, the reconnected and enhanced floodplain off-channel habitats will provide important rearing habitat for juvenile fall-run Chinook salmon, coho salmon, and steelhead and help to keep water temperatures low in summer. These enhanced floodplains are also critical for non-salmon species such as amphibians who use slow-moving or stillwater habitat for breeding and laying eggs. Enhancing existing habitats through this funding strategy will provide significant benefit for multiple native species.

The program would focus on sustaining current levels of capacity, landowner outreach, and project implementation completed in the 2019–2021 biennium. Level investment will not allow for the program to scale up implementation beyond current efforts, creating a consistent mileage goal each biennium. This need for scaling up was identified from ASRP Phase I development and refinements made in 2020, which concluded that in order to see the magnitude of habitat benefits sought through the full ASRP, a drastic increase in restoration in the early years of program implementation is necessary.

If level funding is supported by the Board, the ASRP Steering Committee would re-evaluate the goals of the ASRP to adjust to available funding. This would translate to a reduction in the overall benefit of the program when compared to Phase I model results. Core habitats for at-risk species would be a priority for the program; increasing spatial and life-history diversity of species would not likely be feasible at this funding level. If level funding is carried forward for the entirety of the 30-year implementation period, the ASRP could still potentially implement more than 200 miles of habitat restoration and protection, which would benefit native species and habitats significantly compared to no action. This would partially achieve a mid-level program of action and benefits. Alternatively, the Board could consider a more aggressive funding strategy after the 5-year program evaluation, which would increase expected benefits to species and their habitats.

Slow Ramp-Up Funding Strategy: This strategy incrementally increases the biennial budget for the ASRP after the 2021–2023 biennium by \$7 million dollars in the 2023–2025 biennium and by \$10 million dollars in the 2025–2027 biennium. The total 6-year spending would be \$125 million dollars. Each incremental increase allows the program to increase the level of funding allocated to on-the-ground projects, materials, and in-basin implementation capacity. These increases support the restoration of up to 50 stream miles and up to 4,200 riparian and floodplain acres in the first 6 years of program implementation. Implementing 50 miles of stream restoration will enhance currently occupied habitats while also increasing opportunities for native species to breed, live, and grow in the basin. In addition to what would be accomplished through level implementation, a slow ramp-up funding strategy would allow the ASRP to install more than 1,900 large wood structures in priority areas such as the Skookumchuck and Newaukum rivers. These instream structures will increase fresh gravel recruitment and retention, which creates high-quality spawning habitat for at-risk species such as spring-run Chinook salmon. At this level of investment, floodplain off-channel habitat will be reconnected and enhanced in core habitat areas for multiple species. This action will directly support juvenile salmonid rearing and refuge in winter months, which is critical to their survival. It will also create additional breeding habitat for amphibians such as red-legged frogs, which rely on these temporally available habitats to breed and grow eggs. The incremental increases in budget will support the program’s ability to increase restoration in early years, bettering the chances of larger long-term benefit for habitat and species by kickstarting natural habitat-forming processes early in program implementation. The program would focus early implementation on core habitats for at-risk species and long-lead-time actions such as riparian plantings.

If a slow ramp-up funding strategy is supported by the Board, the 5-year program evaluation will be a critical point to understand how the program is able to scale up implementation in the next several years. Successful landowner partnerships, pace of project execution, and project effectiveness learnings will help the Board determine whether the ASRP program and its partners can achieve the level of restoration it has set out to achieve.

Fast Ramp-Up Funding Strategy: This strategy increases the biennial budget significantly from 2023 to 2027. Each biennium would have an increase in budget by approximately \$20 million dollars, bringing the total 6-year spending on ASRP to \$150 million dollars. This more aggressive ramp-up strategy would support the program to restore and protect up to 65 stream miles and 5,100 riparian and floodplain acres in the first 6 years of implementation. The significant increase in biennial budgets will allow the ASRP to fund several more projects per year with willing landowners and provide additional capacity to develop and execute sound restoration designs. It is expected that through this level of investment the ASRP could construct more than 1,900 large instream wood structures in priority areas such as the Skookumchuck, Newaukum, and upper Chehalis rivers for at-risk species like spring-run Chinook salmon. This would increase the suitable habitat for spawning beyond what is currently available and also what would be enhanced through the lower levels of near-term investment. This high-quality spawning habitat will increase the spatial diversity of spring-run Chinook salmon and reduce the risk of population collapse due to localized weather events. The number of large wood structures in the Skookumchuck and Newaukum rivers will also support restoring natural processes, including increased groundwater exchange and storage, which will decrease water temperatures in sub-basins with already dire summer conditions.

The program will aim to dramatically increase restoration in early years, which increases the certainty of larger long-term benefit for habitat and species. The program would focus early implementation on core habitats for at-risk species and long-lead-time actions such as riparian plantings while seeking to accomplish more habitat gains than the slow ramp-up strategy. This faster pace will put in place more of the overall program scope in early years, setting the tone for later implementation to also be implemented quickly.

If a fast ramp-up funding strategy is supported by the Board, the 5-year program evaluation will be a critical point to understand how the program is able to scale up implementation. Each of the metrics will be important to understand if the ASRP is capable of scaling up this rapidly. Implementation planning efforts have developed efficiencies and processes to promote rapid, scaled-up implementation, but it has not yet been tested at this scale in the basin. Certainty of funding was the largest limiting factor identified to successful scaling up, and if secured it will significantly reduce current uncertainty with this ramp-up strategy. Other uncertainties include in-basin capacity and project timeline constrictions such as permitting and in-water work windows, which could impact the ability to ramp up to this pace in this 6-year time frame.

Process for Developing Future Program Cost Estimates (2027 and Beyond)

The ASRP Steering Committee proposes major evaluations of the ASRP to be conducted by the Board at 5 years (2026) and 10 years (2030) into program implementation. The Board can use these evaluations to provide guidance on future biennia budgets, ASRP goals, and any changes to management structure. The near-term (2021–2027) funding strategies proposed can all scale to meet the current goals of the ASRP; however, the Board should provide guidance on its goals for the program at major program evaluation milestones. Continued collaboration between the Board and the ASRP Steering Committee will be important to ensure that the program is successful in achieving its goals.

Reference

ASRPSC (Aquatic Species Restoration Plan Steering Committee), 2019. *Chehalis Basin Strategy: Aquatic Species Restoration Plan – Phase I*. Office of the Chehalis Basin. Publication #19-06-009. November 2019.