

Narrative to the WRIA 10/12 3-Year Watershed Implementation Priorities Project List

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Appendix A – Example Project Write-up for Evaluation and Ranking

Introduction

This narrative is a complement to the attached spreadsheet that contains capital projects and programs that can be initiated in the next three years, if funding were to become available. The 2009 3-year watershed implementation priorities list was updated from the 2008 3-year list, with input from project sponsors and the Technical Advisory Group (TAG), and review and approval by the Citizens Advisory Committee (CAC) of the Pierce County Lead Entity (WRIAs 10 and 12).

The 2009 3-year project list contains 35 habitat capital projects and 4 hatchery capital projects for a total of 39 capital projects. In addition, there are 21 non-capital programs (e.g., future project development, monitoring, education/outreach, stewardship, etc.).

2009 Update Process

The update process for the 2009 project list consisted of the following steps:

1. Delete projects that were funded in the 2008 Round that are not asking for additional funding.
2. Delete projects that have received funding from other sources, are no longer feasible, or have been replaced by more specific projects.
3. Solicit new projects that meet the following criteria: (1) project can be completed or initiated in the next 3 years; (2) project fits the lead entity strategy; and (3) project has a ready sponsor.

4. Review and fill out new 3-year project template from the Puget Sound Partnership (PSP) with updated project and budget information.
5. The CAC discussed, reviewed and approved the 3-year project list at its April 2 and May 7 meetings.
6. Submit approved 3-year project list and narrative to the PSP by May 15.

Next Steps for Project Sponsors and the TAG

7. Solicit project write-ups from sponsors (according to template in Appendix A) so that TAG can evaluate projects and assign to tier 1 or 2, based on technical criteria from the WRIA 10/12 lead entity strategy. Complete tiering for projects that have submitted write-ups by July 2009.

There was discussion at two meetings in 2007 about potential *sequencing and timing* of projects. This was not revisited in 2008-9; the focus will be on tiering the projects based on technical criteria (see #7 above). In summary, the CAC and TAG agreed that current conditions in the watershed do not warrant sequencing at this time. The projects do not lend themselves to sequencing per some of the TRT/RITT recommendations. There are no concerns about projects doing irreversible harm to the population (e.g., by opening up new habitat when productivity is too low). Also, there is no clear biological sequencing that is apparent. In the end, it was decided that the focus should be more on *prioritization* instead of sequencing at this time.

The CAC and TAG felt it was reasonable to establish priority tiers for the projects based on the technical criteria in the strategy (see Chapter 8), including (1) benefit to salmon, (2) certainty of success, and (3) “fit to strategy.” The TAG applied the criteria to the 15 habitat projects on the 2008 list that are tiered; more projects will be ranked by July 2009. There was a maximum score of 26 points (benefit = 10 pts; certainty = 6 pts; fit to strategy = 10 pts). The scores of all TAG members were averaged and there was a natural break in the scores above and below 20 points. Nine of the 15 projects were given a Tier 1 rating and the remaining six projects were given a Tier 2 rating. The CAC and TAG agreed to accept this scoring and the establishment of two tiers. The remaining 20 projects will be scored when more information is available and site visits can be made. These projects are identified as “unrated” or “new” in the 2009 3-year project list.

Changes from 2008 3-Year Project List

As noted above, projects were removed from last year’s list that are now funded (from SRFB, PSAR or other sources), are no longer feasible, or have been replaced by more detailed project requests.

Three projects from the 2008 list were removed from the 2009 list: Two projects removed were due to partial or full funding in 2008 (South Silver Springs/South Prairie (RM 3.7) restoration and Morey Pond dam fish passage) and one project (Calistoga oxbow culvert replacement) was removed because it is being addressed by Orting in conjunction with the Calistoga setback levee. The two other projects funded in 2008 were for design work on restoration of the Boise Creek golf course

segment and the TransCanada setback levee on the White River; these projects remain on the list for construction funding.

Eleven new projects were added to the 2009 list: (1) two specific projects and a programmatic from the levee setback feasibility study completed in June 2008 (Calistoga Setback Levee in Orting, 24th Street/Sumner Setback Levee in and near Sumner, and projects emanating from the overall levee setback program), (2) additional projects from the WRIA 11/12 nearshore assessment, funded by SRFB (Chambers Bay estuarine and riparian enhancement, Chambers Beach reconstruction and riparian enhancement), (3) two projects on South Prairie Creek (instream/riparian restoration – RM 2-4.6 and Japanese knotweed control), (4) White River corridor projects in Pacific (phase 1 Abernethy and phase 2 – setback berm), (5) Boise Creek restoration – RM 1 – 3, and (6) Improvements at the Buckley fish trap. The White River land acquisition project was modified to focus on the priorities identified in the recently completed “Ecological Preservation Priorities” document by King County.

The improvements at the Buckley fish trap are necessary to address an emerging problem resulting from large returns of pink salmon in recent odd-numbered years. Fish passage limitations at the Buckley trap can delay upstream migration of other species, especially Chinook, because of the challenges of handling and passing large numbers of fish with the existing facilities.

Three new non-capital programs were added to the 2009 list: (1) Sequelitchew Watershed restoration planning, (2) Chambers Creek Restoration Feasibility and Assessment, and (3) White River Restoration Assessment.

Watershed Questions for Three-Year Work Programs (from 2009 Guidance)

The following is a response to the watershed questions to answer for the three-year work programs.

Consistency Question

1. What are the actions and/or suites of actions needed for the next three years to implement your salmon recovery chapter as part of the regional recovery effort?

Details about the actions required to recover Chinook in the Puyallup-White River and Chambers-Clover Creek Watersheds are provided below in the section *Recovery Plan Overview and Watershed Priority Summary*. Briefly, the implementation priorities in our recovery plan and lead entity strategy include: (1) setback levees, floodplain reconnection, and creation of off-channel habitat on the mainstem rivers (Puyallup, White, Carbon, including the estuary); (2) preservation and restoration of high productivity tributaries, including South Prairie Creek, Boise Creek, Greenwater and Clearwater rivers, and Huckleberry Creek; (3) restoration of Puyallup estuary and marine nearshore; and (4) fish screening at the Electron Dam bypass. Our current Three-Year Work Program includes actions that address each of these priorities (see the *Narrative for Suites of Actions* below).

Pace/Status Question

2. What is the status of actions underway per your recovery plan chapter? Is this on pace with the goals of your recovery plan?

We are continuing to implement projects on the 3-year list. For example, in 2008 two projects received partial or full funding: South Silver Springs/South Prairie (RM 3.7) restoration in the Puyallup Watershed, and Morey Pond dam fish passage in the Chambers-Clover Watershed. Unfortunately, the pace of implementation is limited by funding availability. We receive annually between \$450,000 and \$800,000 in SRFB funding and about \$1.0 -1.3 million PSAR funding (from 2007-2011), with average annual local match of about \$860,000. So the total amount available for salmon restoration projects is about \$2.3-3.0 million. The 10-year project list with twenty projects throughout the watershed had an estimated cost of \$66.5 million (which did not include acquisition costs). Clearly the average annual funding available is not sufficient to implement the project list within a 10-year timeframe. Furthermore, tracking progress toward implementation of the recovery plan chapter is complicated by the fact that we do not have an adaptive management plan.

3. What is the general status of implementation towards your habitat restoration, habitat protection, harvest management, and hatchery management goals? [Progress can be tracked in terms of 'not started, little progress, some progress, or complete' or in more details if you choose.]

We have been working with Puget Sound Partnership staff to update the watershed goals spreadsheet for WRIAs 10/12, and we will continue to refine it as we develop an adaptive management plan for the watershed. As we populated the spreadsheet it became clear that we need to focus on articulating near-term and long-term goals and identify measurable objectives for Habitat Management. For Harvest and Hatchery Management we need to identify long-term goals.

Sequence/Timing

4. What are the top implementation priorities in your recovery plan in terms of specific actions or theme/suites of actions? How are these top priorities being sequenced in the next three years? What do you need to be successful in implementing these priorities?

The top implementation priorities in our recovery plan and lead entity strategy are listed in Tables 3 and 4 of the WRIA 10/12 Salmon Habitat Protection and Restoration Strategy, including: (1) setback levees, floodplain reconnection, and creation of off-channel habitat on the mainstem rivers (Puyallup, White, Carbon, including the estuary); (2) preservation and restoration of high productivity tributaries, including South Prairie Creek, Boise Creek, Greenwater and Clearwater rivers, and Huckleberry Creek; (3) restoration of the marine nearshore and Puyallup estuary; and (4) fish screening at the Electron Dam bypass.

Six setback levee projects are in some stage of development (feasibility, design, permitting): (1) two on the White River, one at the King/Pierce Countyline (Countyline) and one in the City of Sumner (24th Street setback), (2) three on the Puyallup River (South Fork, Calistoga area and Sumner setback), and (3) one on the Carbon (Alward Rd). These projects are multi-year, multi-million dollar projects and are moving forward as quickly as funding allows.

Preservation and restoration projects are ongoing in South Prairie Creek, Boise Creek and Greenwater River. One restoration project on each stream is planned over the next two years, Boise Creek and Greenwater River in 2009 and South Prairie Creek in 2010. In addition, design work is underway on a project on Boise Creek and additional assessment/feasibility work is underway on South Prairie Creek. Three parcels on South Prairie Creek, totaling about 37 acres, were recently acquired using SRFB funds.

The WRIA 11/12 nearshore assessment is nearing completion; five restoration projects along the WRIA 12 shoreline are on the 3-year project list. A white paper entitled "Electron Dam Downstream Fish Passage Improvement Concepts" was completed for the Puyallup Tribe of Indians in December 2008. Discussions are also ongoing on the development of a Habitat Conservation Plan (HCP) for the Electron Dam project. Finally, WDFW has been funded to study fish passage at the Electron dam and make recommendations on improvements.

Funding is the biggest need to be successful in project implementation. As noted above, the levee setback projects are multi-year, multi-million dollar projects; there is extensive interest in moving forward on these projects based on the results of the 2008 levee setback feasibility study that identified 32 potential projects on the Puyallup, White and Carbon Rivers. The biggest constraint to WRIA 12 marine nearshore projects remains the Burlington Northern railroad and the constraints on beach feeder bluffs. Finally, ongoing support is needed to ensure that juvenile mortality during outmigration is addressed at the Electron Dam diversion operated by Puget Sound Energy. More attention has been focused on this topic during the past year, but progress is slow.

Next Big Challenge

5. Do these top priorities reflect a change in any way from the previous three-year work program? Have there been any significant changes in the strategy or approach for salmon recovery in your watershed? If so, how and why?

The top priorities have not changed from the 2008 3-year work program. The biggest change is the increased interest on the part of Puyallup valley cities (particularly Orting and Sumner) to help advance levee setback projects to restore riverine processes, reconnect floodplains and store floodwaters. The completion of the levee setback feasibility study (funded by SRFB and completed in 2008) combined with increased outreach to cities and other project sponsors, and PSAR future project development funding has helped highlight the importance of these projects.

6. What is the status or trends of habitat and salmon populations in your watershed?

The status and trends of habitat and salmon populations is addressed below in the section entitled “*Recovery Plan Overview and Watershed Priority Summary.*”

7. Are there new challenges associated with implementing salmon recovery actions that need additional support? If so, what are they?

The greatest challenges are funding, accomplishing restoration in the vicinity of railroads on the WRIA 12 marine nearshore and in the Puyallup estuary on the right bank between RM 2.6-3.7, and addressing juvenile mortality associated with the Electron Dam diversion (for more detail, see response to question 4 above). The “obstacles to implementation” discussion at the Puget Sound regional level will help to address some of these issues in the near future.

Responses to TRT June 2007 and 2008 Comments

The first four items below address the bulleted and bold list of comments from page 3 of the 2007 TRT comments. The remaining items address other issues of importance in the TRT/RITT/PSP comments from 2007-8.

1. The acquisition of riverine and estuarine floodplain corridors remain a high priority in WRIA 10/12. The levee setback feasibility study final report was completed in June 2008 and five projects from that study are now on the 3-year project list (four on the Puyallup River: Calistoga reach – RM 19.1-21.2; South Fork site – RM 17.8-18.4; Sumner Setback – RM 10.7-11.5; and Union Pacific site in the estuary – RM 2.6-3.0; and one on the White River: 24th Street East pointbar – RM 3.2-3.6). In addition the Transcanada setback levee on the White River (RM 8.4-8.8) remains on the list. Three other levee setback projects were funded for design, acquisition, or construction in 2007 (White River county-line – RM 5.2-6.2, Puyallup River at Fennel Creek – RM 15.2-15.8 and South Fork). These levee setback projects are multi-year, high-cost efforts, but we will continue to emphasize their importance in restoring riverine processes and recovering salmon populations.

2. Restoration of flows in the diversion reach of the Lower White River is a priority of the WRIA 10/12 lead entity strategy. Since 2004, summer flows have increased significantly in this reach, helping to connect floodplains and off-channel habitat. The Cascade Water Alliance reached an agreement with the Puyallup and Muckleshoot tribes in June 2008 that maintains minimum flows in the range of 875 cfs down to 500 cfs during the year. This should ensure much improved habitat conditions in the diversion reach from RM 3.6-24.3.

3. Muckleshoot and Puyallup Tribes Implementation of White River Spring Chinook Recovery Plan. Annual adult returns of hatchery, acclimation pond, and natural spring Chinook are increasing and have reached greater than 1000 adults

annually. In 2006 and 2007, more than 4000 adult spring Chinook were passed above Mud Mountain Dam. In 2008, over 1,800 adults were passed upstream. More detail on efforts by the Muckleshoot and Puyallup tribes, WDFW, and Pierce County relative to targets and results (for abundance and productivity) from H-integration and AHA modeling for the White River and Puyallup River Chinook populations are presented below. Little progress has been made on establishing targets for the White River spring Chinook during the past year.

4. Puyallup Estuary Ecosystem Restoration Action Plan – An action plan has not been developed. No resources are available to complete a Puyallup estuary restoration action plan at this time. However, there are several Commencement Bay and Puyallup estuary projects on the 3-year project list, most notably a new project at the Union Pacific site – RM 2.6-3.0 (identified in both the tribal catalogue and the final levee setback feasibility study).

Other key issues:

5. Screening of the Electron dam hydroelectric project – This project remains a high priority in our strategy and it is on the 3-year project list. We have had difficulties moving forward with PSE on this project, but progress has been made this past year by the Puyallup Tribe, WDFW, NMFS, USFWS and Pierce County working with PSE (see response to sequence/timing, Question 4 above).

6. Adoption of population recovery targets and H-integration – As noted above, work is ongoing with the tribes and WDFW on H-integration and the establishment of long-term goals (population targets). Progress has been minimal during the past year. More detail is provided in the section below on H-integration priorities. Support or leadership from WDFW and the RITT is probably necessary to further advance this work.

7. Adaptive management framework – We have not focused a lot of effort on this topic at the watershed level, due to lack of funding and an interest in nesting within the regional framework being developed by the Puget Sound Partnership. Once the regional framework is established and approved, and if funding support becomes available, WRIA 10/12 can develop watershed specific recommendations on monitoring and adaptive management.

8. Missing Components – To summarize from above, there are three components that are lacking in our work plan based on feedback from the TRT: (1) development of an estuary action plan, (2) a monitoring and adaptive management program, and (3) an approach for sequencing and timing of actions. We do not have an action plan underway for the estuary as a whole. Instead, we have select projects that address site-specific estuary restoration activities. Funding is the main constraint to the development of a monitoring and adaptive management approach at the local level. Finally, sequencing of actions is planned in the form of project tiering, based on technical rankings. If a model approach to sequencing is made available, we are supportive of working with the RITT to do this work. We do not have a timeline to address these missing components due to budget constraints at the local

level, and lack of support or eligibility in funding monitoring by the SRFB/PSAR grants.

Recovery Plan Overview and Watershed Priority Summary

The habitat protection and restoration plan submitted by Pierce County and the Co-Managers for the Puget Sound Salmon Recovery Plan shows a good understanding of the actions needed to reduce the risk of extinction of the Puyallup River Fall Chinook and White River Spring Chinook populations. The White River Spring Chinook is the only remaining early-run population in the South/Central geographic region and should achieve low risk status over time to meet ESU recovery goals. The Puyallup River Fall Chinook population should improve from its current high risk status to meet the ESU recovery criteria.

The habitat component of the recovery plan is based on Ecosystem Diagnosis and Treatment (EDT) modeling. However, EDT is not the sole source of information we used to develop the plan. We relied upon information from the WRIA 10 and WRIA 12 limiting factors reports, the 1996 White River Spring Chinook Recovery Plan, TMDL reports for the White River, Puyallup River, and South Prairie Creek, Pierce County basin plans for various sub-watersheds, Pierce Conservation District culvert inventories, Puyallup Tribal fisheries reports, and numerous other studies. We incorporated information from these reports, along with the best professional judgment of scientists familiar with the watershed, into the EDT database. By doing so, we think we have produced a more holistic view of the watersheds, and have produced quantitative estimates of the Viable Salmonid Population (VSP) parameters of productivity, capacity, and life history diversity. A partial list of local watershed references used for developing the EDT analysis is provided at the end of the narrative.

Puyallup River Priorities

EDT modeling was used to provide estimates of VSP parameters for Puyallup River Fall Chinook. The results of our modeling show that productivity for Puyallup River Fall Chinook is 1.3 recruits per spawner, a capacity of about 4100 adults, and an average equilibrium abundance of about 1300 adults. The EDT Life History Diversity Index (DI) is reduced to 30% of the historical potential. If South Prairie Creek, the most productive tributary of the Puyallup River, is excluded from the analysis, the productivity of the mainstem is reduced to about 0.8 recruits per spawner and a capacity of about 3100. Clearly, South Prairie Creek maintains the productivity of Chinook in the system above replacement level, so protection of habitat in South Prairie Creek is a high priority strategy for the Puyallup watershed.

In addition, increasing productivity in the rest of the Puyallup system is also a high priority strategy. The EDT modeling indicates that the major causes of low productivity and capacity in the Puyallup system are the reduction of channel stability, habitat diversity (e.g., pools and off-channel rearing habitat), and key habitat quantity in the mainstem Puyallup and Carbon Rivers from the City of Orting downstream to the estuary. The Chinook life stages that are most greatly affected are pre-spawning adults, incubating eggs, and emergent fry. The primary

environmental attributes that degrade channel stability, habitat diversity, and key habitat quantity for those life stages include increases in the channel gradient due to channel straightening, loss of off-channel habitat, loss of riparian habitat quality, and loss of large woody debris (LWD). These habitat degradations are all associated with levees and other hydromodifications that have reduced the river's access to its floodplain. Pierce County has adopted a strategy of levee setback projects and oxbow reconnections in the Puyallup and Carbon Rivers to reconnect the floodplain and allow channel sinuosity and reduction of channel gradient, the creation of off-channel habitat, and improved large woody debris recruitment.

EDT scenario modeling corroborates our understanding of the benefits of levee setback projects. The type of actions, taken as a group, that produced the greatest increases in abundance for both Chinook and coho was levee setbacks. The same group produced the greatest increase in productivity for chinook.

Puyallup estuary, Commencement Bay, and marine nearshore habitat improvements will likely have a high benefit for Chinook. The EDT scenario modeling showed estuarine actions (as a group) produced the second highest increase in abundance for Chinook after levee setback projects (as a group).

Improving the diversion screens associated with the Electron Dam is also a high priority action for Puyallup River Fall Chinook. The mortality of smolts at the diversion screens is as much as 40% or higher. The EDT scenario modeling showed that improvement of the Electron Dam diversion screen was the top ranked action for Chinook population performance and second ranking action for combined Chinook and Coho population performance.

White River Priorities

EDT modeling was used to provide estimates of VSP parameters for White River Spring Chinook. The results of our modeling show that productivity for White River Spring Chinook is 1.4 recruits per spawner, a capacity of about 2600 adults, and an average equilibrium abundance of about 700 adults. The EDT Life History DI is reduced to 40% of the historical potential. The tributaries with the highest productivity include Boise Creek, Clearwater Creek, Greenwater River, Huckleberry Creek, and West Fork White River.

The EDT modeling indicates that the major causes of low productivity and capacity in the White River system are the flow modifications, reduction of channel stability, habitat diversity, and key habitat quantity in the mainstem White River from Mud Mountain Dam downstream to the estuary. A high sediment load is also a concern in Clearwater Creek and Greenwater River. The Chinook life stages that are most greatly affected are pre-spawning adults, incubating eggs, and emergent fry. The primary environmental attributes that degrade channel stability, habitat diversity, and key habitat quantity for those life stages include increases in the channel gradient due to channel straightening, loss of off-channel habitat, loss of riparian habitat quality, and loss of large woody debris. Flow modifications are related to the management of Mud Mountain Dam and the diversion of flow to Lake Tapps.

EDT scenario modeling of actions downstream of Mud Mountain Dam indicated that changes in flow management at Mud Mountain Dam and at the PSE diversion to simulate a more natural flow regime would be highly effective in restoring productivity, abundance, and life history diversity. In addition, mainstem levee setback projects, estuary restoration projects, and Boise Creek riparian revegetation and LWD placement projects would provide substantial improvement in all VSP parameters. Modeled actions upstream of Mud Mountain Dam that showed high benefit to Chinook populations include projects on the Greenwater River and Huckleberry Creek that increase LWD, improve riparian conditions, and address sediment supply sources.

In addition to Chinook benefits, these scenarios showed substantial benefits to coho. Bull Trout and Steelhead were not included in our EDT modeling efforts; however, it is likely that these species would also benefit significantly from these actions.

Chambers-Clover Creek Priorities

The EDT analysis suggests that Chambers/Clover Creek was, and still is, a highly productive watershed for coho. Historical production potential exceeded 12,000 with a productivity of about 36 recruits per spawner, the highest coho productivity of the four watersheds analyzed (Chambers-Clover, Puyallup, White, and Hylebos). EDT model results indicate that the current system would support about 700 adults with a productivity of about 7.8 recruits per spawner. High natural productivity of this system is related to the abundance of groundwater and the number of lakes and ponds able to be used by juvenile coho. However, life history DI has been reduced to 40% of historical levels. Top priorities for restoring environmental factors are habitat diversity and flow conditions in Steilacoom Lake, lower Clover Creek, and the Chambers Creek mainstem (among other reaches). Loss of habitat quantity has been severe in some areas related to flow changes. Furthermore, barriers to fish migration, either for adults or juveniles, exist in several areas. The most significant barriers include Shera's falls on Clover Creek and the dam at Morey Creek pond (which will be corrected in summer 2009). An emerging issue for coho and other salmonids in Clover and Chambers Creek is water quality impacts, resulting primarily from stormwater runoff. Concerns have been raised about potential toxicity from toxic blue-green (cyanobacteria) algal blooms occurring in watershed lakes and moving downstream, and coho pre-spawn mortality, which has recently been documented in many urban watersheds in the Puget Sound region.

Questions exist about whether the Chambers-Clover Creek system historically supported Chinook due to its small size and not being directly associated with a large mainstem river. Based solely on EDT modeling results, VSP parameter values suggest that Chinook might have used the lower portions of the stream historically with a population abundance of over 2000 adults. Furthermore, modeling results indicate that under current conditions it may be able to support a small population of about 350 with a productivity of about 6.3 recruits per spawner. Currently, both

marked and unmarked Chinook are trapped in Chambers Bay for use at the Garrison Springs Hatchery facility, and there are no plans to begin allowing Chinook passage above the trap. Other salmonid species are allowed above the Chambers Bay dam, including coho, chum, and steelhead. The top areas with both restoration and protection benefit for Chinook are mainstem Chambers Creek and Chambers Bay. The top ranked factor for restoration is habitat diversity, which relates to low levels of LWD and low riparian quality in some areas.

H-Integration Priorities

In addition to the role of habitat actions in salmon recovery, the EDT modeling results provided us insight into the role of hatcheries in the WRIA 10 system. First, the overall performance of Chinook in the Puyallup-White system appears to be exceptionally poor, primarily due to low productivity. It is likely that hatchery production in the system tends to produce an impression that Chinook performance is better than it actually is due to straying and the natural production that comes from those strays. It has become increasingly evident in recent years that significant straying is occurring within the system by hatchery fish. In the upper White River, supplementation with hatchery fish could be interpreted to mean that the runs back to that area are relatively healthy. Second, for the foreseeable future hatchery production should continue to be given a role in the Puyallup-White basin. This is vitally important in the White River system using supplementation fish from the White River hatchery. On the Puyallup River, it appears that hatchery production will also be important to help maintain natural production until more progress is made in habitat restoration. However, hatchery practices will need to be reformed to more directly address how hatchery fish can be used to effectively supplement natural production in this area. And finally, the results demonstrate that use of habitat measures alone, even conducted on a very extensive scale, is unlikely to achieve desired fish production levels in this basin in the near term.

In their critique of the draft Puyallup-White chapter, the TRT identified three primary concerns with the Puyallup-White Chinook Recovery Chapter.

- Failure to identify and adopt recovery goals. (The TRT identified planning targets for the Puyallup, but not for the White).
- Failure to integrate habitat, hatchery, and harvest management.
- Failure to develop an adaptive management plan.

AHA Scenario Modeling

An important element of Chinook recovery in the Puget Sound is the alignment and integration of recovery goals and actions in the management of hatchery, harvest, and habitat restoration programs. To better integrate the H's in the Puyallup/White watershed we have chosen to use the All H Analyzer (AHA) model, which allows managers to explore the implications of alternative ways of balancing the "H's" so that informed decisions can be made. The AHA model input data includes fish productivity, habitat capacity, harvest rate, hatchery brood stock information, and hatchery release numbers. By changing various parameters in

different ways, managers are able to create scenarios that examine the interactive effects of hatchery, harvest, and habitat practices on salmon populations.

Puyallup River Fall Chinook: Participants in the H-Integration efforts include the Puyallup Tribe of Indians, WDFW, and Pierce County. So far, we have examined multiple H-integration scenarios using the AHA model. In addition, we have identified potential near-term goals and actions. Future work will include reaching agreements on both near-term and long-term goals and actions, and assigning responsible parties for the actions. We will also document our assumptions, AHA model results, goals, actions, and presumed outcomes.

A brief description of the AHA modeling results for Puyallup River Fall Chinook is provided below:

❖ *Current Conditions:*

- Habitat:
 - Productivity = 1.39
 - Capacity = 4,075
- Harvest:
 - 50% harvest rate on Hatchery Origin Recruits (HORs)
 - 50% harvest rate on Natural Origin Recruits (NORs)
- Hatchery:
 - 1110 adult local brood stock
 - 70% of HORs return to hatchery and 30% return to spawning grounds
 - Hatchery brood stock is approximately 4% NORs
 - Hatchery origin spawners is approximately 87%

❖ *Near-term goals:*

- Habitat:
 - Productivity = 2.6
 - Capacity = 10,000
- Harvest:
 - 35% harvest rate on NORs
 - 70% harvest rate on HORs
- Hatchery:
 - 1470 adult local brood stock
 - 70% of HORs return to hatchery and 30% return to spawning grounds
 - Hatchery brood stock is approximately 20% NORs
 - Hatchery origin spawners is approximately 55%

❖ *Near-term actions:*

- Habitat:
 - Conduct habitat improvements to achieve a habitat productivity of 2.6 and capacity of 10,000. Habitat improvements include levee setback projects on the middle and lower Puyallup River, estuary restoration, and protection and restoration of South Prairie Creek and the upper Puyallup River. In addition, fish passage improvements at the Electron Dam would be especially beneficial.
- Harvest:

- Implement a selective harvest in the Puyallup River and Commencement Bay to achieve a harvest rate of 35% on NORs and 75% on HORs.
- Hatchery:
 - Construct fish racks on Voights Creek and South Prairie Creek to allow sorting and separating of HORs and NORs in those tributaries.
 - Limit the number of HORs above the Voights Creek Hatchery and South Prairie Creek to achieve the 55% hatchery origin spawners.
 - Use adipose-present fish (presumptive NORs) at the Voights Creek Hatchery to achieve the goal of 20% natural-origin brood stock.

As different scenarios were analyzed, it became clear that the currently low natural productivity of the Puyallup system limited near-term recovery options. It was not until productivity was above about 3.0 that the number of NORs increased to the point that the Proportion of Natural Influence (PNI) was above 0.5. The PNI is a function of the proportion of natural spawners that are of hatchery origin (pHOS); as pHOS decreases, PNI increases. Presumably, when the PNI is above 0.5, then natural selection has a greater effect on the population than does domestication of the hatchery environment.

White River Spring Chinook: The H-integration effort for White River Spring Chinook is still in a preliminary stage. Participants have included the Puyallup Tribe of Indians, the Muckleshoot Indian Tribe, WDFW, and Pierce County. Early AHA scenario modeling has shown that, similar to the Puyallup system, the currently low natural productivity of the White River has drastically reduced the number of NORs, and limited near-term recovery options. It is likely that additional scenario modeling will show that actions to increase habitat productivity are critical to achieving a population with a PNI above 0.5. As yet, no near-term or long-term goals or actions have been identified. Future work will include reaching agreements on both near-term and long-term goals and actions, documenting our assumptions and results, and assigning responsible parties for completing identified actions.

A brief description of the AHA modeling results for White River Spring Chinook is provided below:

❖ *Current Conditions:*

- Habitat:
 - Productivity = 1.4
 - Capacity = 2600
- Harvest:
 - 20% harvest rate on Hatchery Origin Recruits (HORs)
 - 20% harvest rate on Natural Origin Recruits (NORs)
- Hatchery:
 - About 300 adult local brood stock and 500 imported brood stock, (adjusted to achieve a release of about 1,200,000 smolts). Hatchery brood stock is approximately 2% NORs
 - 65% of HORs return to hatchery and 35% return to spawning grounds.

- Hatchery origin spawners is approximately 62%
- Population Composition
 - NOR Escapement of about 561, Hatchery origin Spawners (HoS) of about 1137, and a Total Escapement of about 1698.
 - A total harvest of about 582.
 - Hatchery broodstock of about 817, and a hatchery surplus of 331.
 - An average total runsize of about 2912.
 - The Proportion of Natural Influence (PNI) is 0.03, indicating that selection in the hatchery is greater than selection in the natural environment.

The H-integration effort for White River Spring Chinook is still in a preliminary stage and no near-term goals or actions have been identified. Early AHA scenario modeling has shown that, similar to the Puyallup system, the currently low natural productivity of the White River has drastically reduced the number of NORs, and limited near-term recovery options. It is likely that additional scenario modeling will show that actions to increase habitat productivity are critical to achieving a population with a PNI above 0.5.

Narrative for Suites of Actions

The previous summary of watershed strategy and recovery priorities provides the context for the list of actions included in the attached spreadsheet, *Three-Year Watershed Implementation Priorities for WRIAs 10 and 12*. The projects have been grouped into suites of actions that address specific recovery priorities. Appendix A contains one example of project write-ups that were completed for the 15 tiered projects. Similar write-ups will be completed in the next several months for most of the other projects on the 3-year project list.

Floodplain reconnection, levee setback, and riparian habitat improvements:

- Puyallup River Setback Levee at South Fork (RM 17.8-18.4))
- Calistoga reach setback levee near Orting (Puyallup River – RM 19.1-21.2)
- Sumner setback levee (Puyallup River – RM 10.7-11.5)
- White River land acquisition – protection (tier 1 parcels from “Ecological Preservation Priorities in White River Sub-Basin”)
- TransCanada setback levee (White River – RM 8.4-8.8)
- 24th Street pointbar setback levee (White River – RM 3.2-3.6)
- White River Corridor projects in Pacific (Phase 1 – Abernethy, and Phase 2 – setback berm)
- White River Restoration Assessment
- Programmatic – Implement levee setback projects from Puyallup River Watershed Levee Setback Feasibility Study
- East Hylebos Ravine Habitat Restoration
- West Hylebos acquisition
- Upper Puyallup River land acquisition

Estuary, Commencement Bay, and Nearshore restoration:

- Titlow Beach Pocket Estuary Restoration
- Puyallup River acquisition and setback levee (Union Pacific, RM 2.6-3.0)
- Chambers Bay estuarine and riparian enhancement
- Chambers Beach reconstruction and riparian enhancement
- Sequelitchew Creek beach and riparian enhancement
- Pocket beach enhancement/nourishment pilot: Sequelitchew to Solo Point
- Commencement Bay - Puget Creek Estuary Restoration
- Marine View Drive acquisition and nearshore restoration
- Hylebos Creek nearshore restoration
- Nearshore restoration (Hylebos estuary/mouth)
- Olympic View Resource Area (OVRA) Triangle - Commencement Bay
- Hylebos estuary (Hauff property) restoration
- Swan Creek restoration
- Sequelitchew watershed restoration planning
- CHB – pollution hotline
- CHB - Bay Watcher

Protection and restoration of South Prairie Creek:

- South Prairie Creek Acquisition (RM 0-8)
- South Prairie Creek (instream/riparian restoration – RM 2-4.6)
- South Prairie Creek knotweed control – Phase 1

Protection and restoration of Boise Creek:

- Boise Creek Golf Course segment restoration
- Boise Creek fish passage project
- Boise Creek restoration (RM 1-3)

Sediment load, LWD, and riparian condition in Upper White River tributaries:

- Upper White - Greenwater/Huckleberry Creek - road decommission
- White River Watershed Stewardship Program

Electron Dam diversion screen improvements:

- Installation of fish screens at Electron Dam Diversion

Chambers-Clover Creek Watershed barrier removal and restoration:

- Puget Creek rearing pond
- Sequelitchew Creek Diversion and streamflow restoration
- Chambers Creek Restoration and Feasibility Assessment

Programmatic habitat restoration and protection actions:

- Shoreline Program updates
- Greenwater LWD study
- Update regional Culvert Study
- Develop nearshore projects

- Technical Support to other jurisdictions
- Public Outreach/Communications - on specifics
- Create outreach function targeted at salmon recovery
- Create South Puget Sound regional organization

H-Integration and Adaptive Management:

- Smolt trapping – Puyallup River
- Smolt trapping - White River
- Smolt trapping – South Prairie Creek
- Smolt trapping – Chambers Creek
- Fish tagging for Chinook tracking
- Mud Mountain Dam mortality study
- Voights Creek Hatchery - Upgrade clarifier/abatement ponds
- Voights Creek Hatchery adult facilities
- Chambers Creek Adult Trap and Juvenile Acclimation Facility Improvements
- Improvements at the Buckley fish trap

Monitoring:

- Develop nearshore effectiveness monitoring plan

Partial List of References Specific to Pierce County Watersheds Used in Developing the Habitat Recovery Strategy

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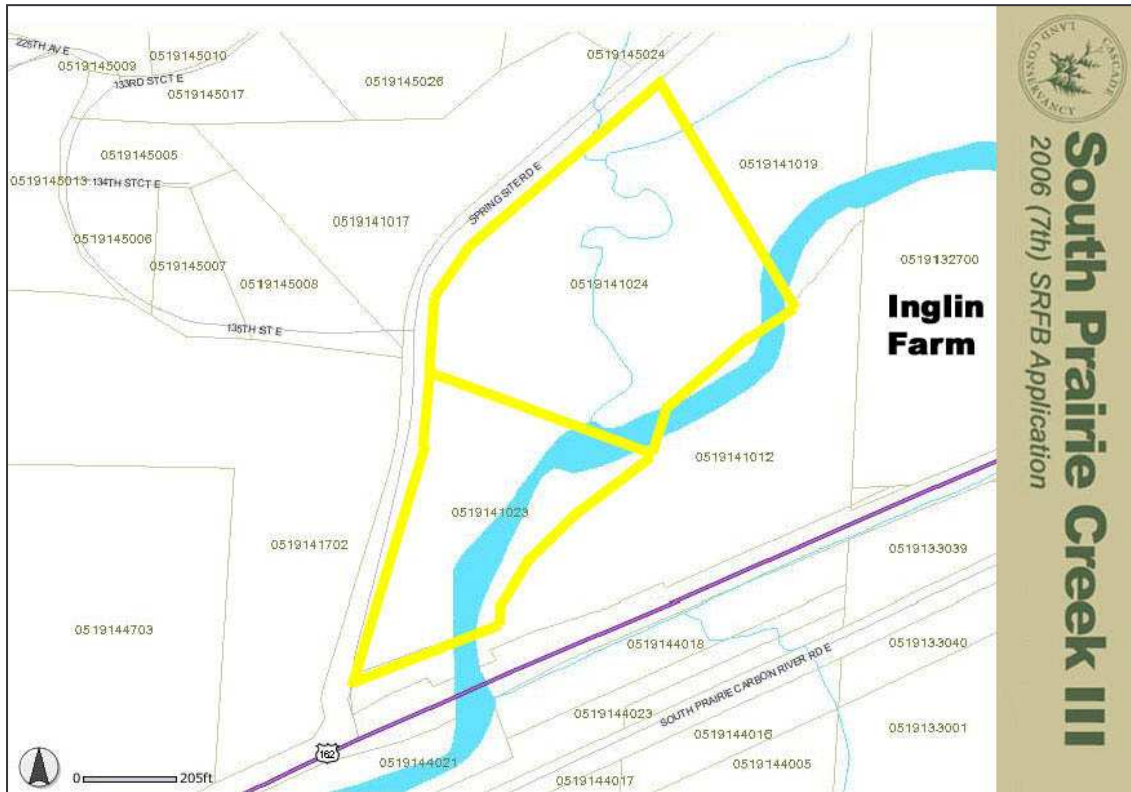
Appendix A

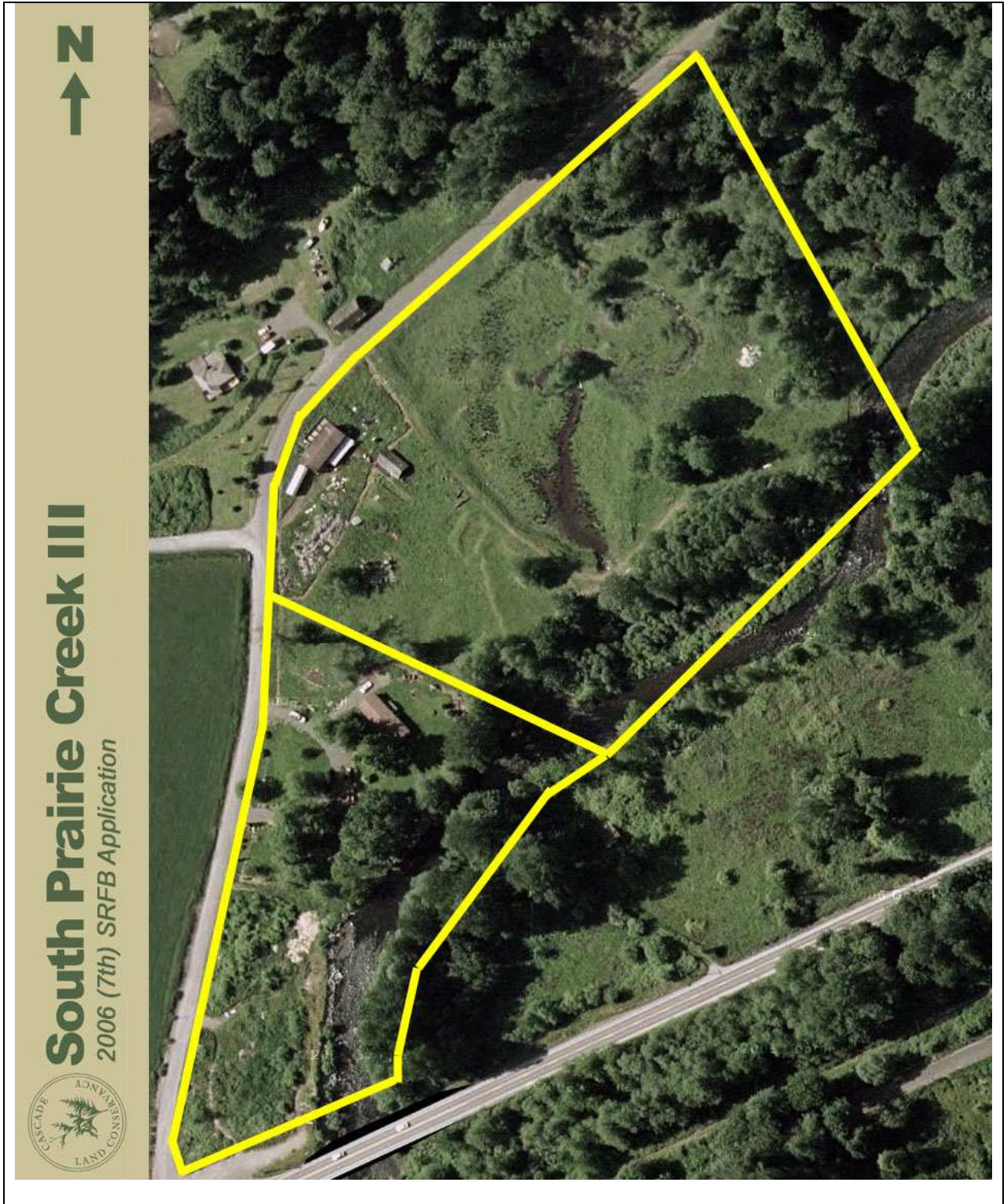
Example Project Write-up for Evaluation and Ranking

| | |
|--|---|
| Action or Project Name (note: this may be a suite of actions): | South Prairie Creek and South Silver Springs Tributary Restoration – RM 3.7 |
| Tracking Number (EDT #, Basin Plan #, etc.) | Action ID: P-51 (from Phase 2 EDT Report) – Lower South Prairie Creek Stream Corridor Acquisition and Restoration |
| Basin (Puyallup, White, Hylebos, Chambers): | Targeted geographic area: Puyallup River Watershed Targeted stream(s): South Prairie Creek and tributary |
| Sponsor/Applicant: | Pierce County Water Programs |
| Contact Name and Information | Tom Nelson, 253-798-4672 |
| Description of action(s) (provide general description – identify how action is intended to address the issue): | This project involves restoration of a 12.85-acre site along the mainstem of South Prairie Creek at RM 3.7, including an important cold-water tributary that flows through the site. The project includes removal of fill and a weir, control of invasive vegetation, placement of LWD and revegetation of the site. The project would benefit juvenile salmonids in terms of enhanced rearing habitat, high-flow refuge, and improved connectivity between the tributary and mainstem creek. |
| Issue (describe nature of problem; also list specific survival factors involved if possible): | The site has been in agricultural use for decades and is degraded from cattle and other livestock keeping and grazing, placement of a berm, weir and culvert for water storage, and loss of vegetation. Rearing habitat is degraded and connectivity with floodplain and tributary is compromised. |
| Project Goals & Objectives | The project goals and objectives are as follows: <ol style="list-style-type: none"> (1) reconnect floodplain and off-channel habitat with the creek and a key cool-water tributary (2) restore/enhance salmonid spawning and rearing habitat by adding large woody debris and enhancing off-channel habitats (3) restore riparian conditions (and vegetation) and control invasive plants along the river and floodplain |
| Known or likely cause of problem (source of problem): | Conversion of the property to agricultural uses impacted flow, juvenile migration, and riparian habitat conditions. Removal of fill, structures (weir, culvert) and revegetation will help restore habitat conditions. |
| Strategy for amelioration or correction (describe or define the overall strategy for correcting problem): | Removal of an earthen berm (fill), weir, and culvert; and installation of large woody debris and revegetation will improve currently degraded habitat conditions. This will improve connectivity and enhance off-channel rearing habitat. |
| Areas or sites for implementation (where the action will be implemented): | South Prairie Creek at RM 3.7, including cool-water tributary. |
| Benefit to Salmon (Briefly explain the benefit to salmon in the context of the Lead Entity strategy, including priority stocks and strategic priorities, see Figure 1): | South Prairie Creek, the primary tributary to the Carbon River, is the most important salmonid spawning area in the Puyallup watershed and is identified as a high priority in the Salmon Habitat Protection and Restoration Strategy for WRIAs 10 and 12. The Pierce County EDT Watershed Assessment ranks “Lower South Prairie Creek” (the location of this site) as follows: Chinook protection and restoration benefits |

| | | |
|--|---|---|
| | (rank A and B, respectively), coho protection and restoration benefits (both ranked A). The EDT analysis states that the “South Prairie Creek subpopulation (of chinook salmon) was estimated to have the highest remaining productivity in the [Puyallup] basin.” | |
| Certainty of Success. (Briefly explain the certainty of success in terms of willing landowners, permitting, feasibility, etc.): | Pierce County is currently seeking to acquire the 13 acre site as part of a 6 th round SRFB grant. A site restoration design is also in the beginning stages and is expected to be completed in 2007. Restoration of this site could occur during 2008. | |
| Fit to Strategy | The WRIA 10/12 Lead Entity strategy for Salmon Habitat Protection and Restoration (2005) identifies floodplain reconnection, LWD placement, and channel stability as the priority for South Prairie Creek (Figure 1, p. 14). | |
| Sequencing/Timing Issues | . | |
| Has a similar or identical action been formally proposed (identify action name and agency submitting if known): | <ul style="list-style-type: none"> • 6th round SRFB grant for acquisition (\$397,000) • 2006 Community Salmon Fund grant for site restoration design • 3-year Project List of Chinook Recovery Actions (2006) | |
| <u>Technical feasibility (circle one):</u> <input checked="" type="checkbox"/> Methods well known – very feasible <input type="checkbox"/> Methods partly known – some uncertainty <input type="checkbox"/> Methods experimental – high uncertainty | <u>Certainty of outcome (block one):</u> <input type="checkbox"/> Certain of achieving all aspects of goal <input checked="" type="checkbox"/> Uncertain of achieving some aspects of goal <input type="checkbox"/> Uncertain of achieving all aspects of goal | <u>Community support (circle one):</u> <input checked="" type="checkbox"/> Broad support – well accepted <input type="checkbox"/> Uncertain support – acceptance unknown <input type="checkbox"/> Broad support unlikely – known conflicts |
| <u>Approximate project cost:</u> \$450,000 for debris removal and site restoration | <u>Describe nature of uncertainty:</u> Acquisition still being finalized; full extent of restoration need not yet known, but natural site hydrology makes this an ideal site for restoration. | <u>Proposed project partners:</u> Pierce County Pierce Conservation District |

Map/Figure/Schematic (including location map and photos, if appropriate)





| Pierce County Lead Entity (WRIA 10/12) 2009 3-year Work Program | | | | | | | | | | | | | | | | | | | | 5/14/09 | | | | |
|---|---------------|---|--|--------------------------|------------------|--|--|--|---|--------------------------------|--|--|--|---|----------------------------------|---------------------|--|----------------|--------------------------------------|---|--|------------------------------|-------------------------------------|-------------|
| Puyallup/White and Chambers/Clover Watersheds | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Information and How it Relates to the Recovery Plan | | | | | | | | | | Project Planning | | | | | | | Project Cost and Sponsor | | | | | | | |
| Project Type | Plan Category | Project Name | Project Description (Brief description) | Priority tier of project | Limiting Factors | Document Reference for limiting factor (Recovery Plan, Chapter 3 - Habitat Protection) | Habitat Type (HWS items i.e. riparian, estuary river delta, nearshore, etc.) | Activity Type (HWS items - i.e. fish passage, instream flow, sediment reduction, etc.) | Project Performance (restore 30 acres of floodplain) | Primary Species Benefiting | Secondary Species Benefiting | Current Project Status (Conceptual, Feasibility completed, land acquisition completed, design completed, permitting completed, construction completed) | 2009 Activity to be funded | 2009 Estimated Cost | 2010 Activity to be funded | 2010 Estimated Cost | 2011 Activity to be funded | 2011 Estimated | Likely End Date | Likely Sponsor | Total Cost of Project | Local share or other funding | Source of funds (PSAR, SRFB, other) | |
| Restoration | Capital | TransCanada setback levee | Levee setback and levee modification. Modify existing breaches and remove portions of levee on King County owned property to improve potential for overbank flow into existing side-channels. | 1 | 1, 3 | Strategy Table 3: setback levees, floodplain reconstruction | Instream, riparian, wetland, upland | Instream wetland, riparian | 50 acres floodplain/off-channel habitat reconnected | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Feasibility; permit-ready design funded in 2008 Round | Feasibility, Scoping, design | Property acquisition, design, and permitting | \$200,000 | \$375,000 | Construction, monitoring and maintenance | \$1,000,000 | 2010 | King County | \$1,575,000 | \$400,000 | \$1,175,000 | |
| Restoration | Capital | Boise Creek Golf Course Segment | Relocate/restore channel to historical course against south hillside. | 1 | 1, 3, 5 | Strategy Table 4: LWD, riparian restoration | Instream, riparian | Instream, riparian | 0.5 miles stream restored | Chinook and Steelhead | coho, pink, chum, cutthroat trout, coho, pink, chum, cutthroat trout | Feasibility; 35% design funded in 2008 Round | Survey, Design, Engineer | Construction | \$150,000 | \$2,050,000 | | | 2010 | PTF, PRP, King County, Emerald | \$2,200,000 | \$330,000 | \$1,870,000 | |
| Restoration | Capital | Boise Creek fish passage project (above golf course) - Design | Create fish passage project at the cascades above the golf course on Boise Creek | 1 | 7 | Strategy Table 4: LWD, riparian restoration | fish passage | fish passage | open up 1.2 miles of spawning habitat | Chinook and Steelhead | coho, pink, chum, cutthroat trout | Feasibility; 35% design funded in 2008 Round | Feasibility, Scoping, and permit ready design | Permitting and Construction | \$100,000 | \$450,000 | | | 2010 | King County, Puyallup Tribe | \$550,000 | \$100,000 | \$450,000 | |
| Restoration | Capital | Puyallup River Setback Levee at South Fork (RM 17.8-18.4) | Remove existing levee/construct setback levee along 0.6 miles of Puyallup River (left bank) to reconnect 45 floodplain acres, establishing natural riverine processes. | 1 | 1, 3 | Strategy Table 3: setback levees, floodplain reconstruction | Instream, riparian, upland, wetland | Instream wetland, riparian | 0.6 miles of levee setback; 45 acres floodplain/off-channel habitat reconnected | Chinook | Steelhead, bull trout, coho, pink, cutthroat | 30% design complete; 100% design funded | Design, permitting | Costs covered by 2007 PSAR; local match | Permitting, Final Plans, Funding | \$200,000 | \$200,000 | Construction | \$4,500,000 | 2011 | Pierce County Surface Water Management | \$4,700,000 | \$1,570,000 | \$3,130,000 |
| Restoration | Capital | Pocket Beach Enhancement/Nourishment Pilot: Sequallitchev to Solo Point | Target existing pocket beaches persisting waterward of the BNSF rail line between Sequallitchev Creek and Skelacoom for sediment enhancement and marine riparian planting pilot projects | 1 | 2 | WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4 | riparian and nearshore | nearshore restoration | pocket beaches in a 5 mile reach | Chinook | Chum, coho and pink | Conceptual completed, feasibility started | feasibility, final design and permitting | Construction | \$109,683 | \$365,610 | Monitoring | \$80,000 | 2011 | SPSSEG | \$602,300 | \$90,345 | \$511,955 | |
| Restoration | Capital | Installation of fish screens at Electron Dam Diversion | Install inclined floor screen structure on flume at the Electron Dam diversion to reduce juvenile mortality during outmigration. | 1 | 7 | Strategy Table 3: Need adequate screening on diversion canal | Instream | Fish passage, fish screen | N/A | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Conceptual design, scoping | Conceptual design, scoping | Design, permitting | \$100,000 | \$250,000 | Construction | \$5,650,000 | 2011 | SPSSEG, Puyallup Tribe, PS Energy | \$6,000,000 | \$1,000,000 | \$5,000,000 | |
| Restoration | Capital | Commencement Bay - Puget Creek Estuary Restoration | Remove contaminated sediment, sediment replacement, softening of rip-rap shoreline with gravel/cobble mix, restore eelgrass beds, restore sand lance spawning | 2 | 2 | Strategy Table 4: WRIA 12 intertidal habitat | Nearshore beaches | Nearshore restoration | N/A | Chinook | Chum, pink, coho | Conceptual | Remedial Investigation/ Feasibility Study | Design, permitting | \$150,000 | \$75,000 | Construction | \$1,225,000 | 2013 | Pierce County, WDNR, PCRS | \$1,450,000 | \$150,000 | \$1,300,000 | |
| Restoration | Capital | Puget Creek Rearing Pond | Off-channel pond for rearing of juveniles & adult acclimatization. Just before stream goes into underground fish ladder-this area has some salt water intrusion at high tide. | 2 | 2 | Strategy Table 4: WRIA 12 intertidal habitat | Instream | Instream wetland, riparian | 0.2 acres rearing habitat | Coho | | Conceptual; 30% design funded | Design, Permittive | Construction | \$9,000 | \$71,000 | Monitoring & maintenance | \$2,000 | 2013 | Puget Creek Restoration Society | \$80,000 | \$20,000 | \$60,000 | |
| Restoration | Capital | Sequallitchev Creek Beach and Riparian Restoration | Remove derelict creosote pilings and bulkhead structures, restore natural beach profile, remove invasive plants and restore native, marine riparian corridor | 2 | 2 | Strategy Table 4: WRIA 12 intertidal habitat | Nearshore beaches | Nearshore restoration | N/A | Chinook | coho, chum, pink and forage fish | Conceptual | Preliminary Design | Permitting/Implementation/Construction | \$20,000 | \$200,000 | Implementation, monitoring and maintenance | \$130,000 | 2012 | SPSSEG | \$350,000 | \$20,000 | \$297,500 | |
| Restoration | Capital | Titlow Beach Pocket Estuary | Replace culvert/tidegate through BNSF railroad to improve connectivity and fish passage between Titlow lagoon and Puget Sound; enhance lagoon and beach habitat functionality N/A alternative site. Mitigation | 2 | 2 | WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4 | estuary, riparian and nearshore | fish passage, near shore restoration | 6 ac riparian, 2acre estuary, 1/4-mile shoreline | Chinook | Chum, coho and pink | Conceptual completed, feasibility started | feasibility and design | Final Design and permitting | \$80,000 | \$150,000 | Construction& Planting | \$7,470,000 | 2011 | SPSSEG, People for Puget Sound, Metro Parks, BNSF | \$7,700,000 | \$1,155,000 | \$6,545,000 | |
| Restoration | Capital | Hylebos Creek Nearshore Restoration | Construction of 2 acre restoration area. Located on the Hylebos Creek tidal influence. Restoration of property owned by WSDOT. Revegetation of tidal mud flats to encourage development of marsh habitat | Unrated | 2 | N/A | Nearshore embayment | Riparian, instream wetland | N/A | Chinook | coho | N/A | Construction Design, permitting, Acquisition, construction | \$1,000,000 | Monitoring | \$5,000 | Monitoring | \$5,000 | 2008 - 2013 construction maintenance | Port of Tacoma/ Tacoma | \$1,000,000 | N/A | N/A | |
| Restoration | Capital | Restoration - Hylebos Mouth | Off-channel habitat, evaluation of site conditions, clean up site of, revegetation - Priority area in the estuary. Mouth of Hylebos Creek | Unrated | 2 | N/A | Nearshore embayment | Revegetation off-channel habitat creation, revegetation, invasive species control | N/A | Chinook | coho | N/A | Scoping, design, permitting | \$90,000 | Monitoring, maintenance | \$5,000 | Monitoring, maintenance | \$5,000 | 2010 - 2013 maintenance | Friends of the Hylebos | \$100,000 | \$25,000 | \$75,000 | |
| Restoration | Capital | Hauff Property restoration | Off-channel habitat, evaluation of site conditions, clean up site of, revegetation - Priority area in the estuary. Mouth of Hylebos Creek | Unrated | 2 | N/A | Nearshore embayment | Revegetation off-channel habitat creation, revegetation, invasive species control | N/A | Chinook | coho | N/A | Scoping, design, permitting | \$250,000 | Construction | \$2,725,000 | Post-construction monitoring | \$25,000 | 2014 - monitoring | Friends of the Hylebos | \$3,500,000 | \$2,000,000 | \$1,500,000 | |
| Restoration | Capital | Olympic View Triangle - Commencement Bay | Tip of Foss and Middle waterways - salt marsh habitat - currently upland on DNR property - Eelgrass on bay side - Tim Goodman | Unrated | 2 | N/A | Nearshore embayment | nearshore restoration | N/A | Chinook | coho, pink, chum | Conceptual | Monitoring (Construction Completion in 2007) | Monitoring, maintenance | \$40,000 | \$20,000 | Monitoring, maintenance | \$40,000 | Construction Complete 2007 | WDNR | \$900,000 | \$250,000 | \$650,000 | |
| Restoration | Capital | East Hylebos Ravine Habitat Restoration | Extends the habitat restoration actions just north of the West Milton Nature Preserve (located on the east fork). Stream bank stabilization in the most productive area on the East Fork of the Hylebos. | Unrated | 1, 3 | N/A | Instream, riparian, upland | Upland-wetland, sediment reduction | N/A | Chinook | coho | N/A | Scoping, design, permitting | 50,000 | Construction | 685,000 | Monitoring, maintenance | 15,000 | 2014 - Monitoring | Friends of the Hylebos | \$750,000 | \$250,000 | \$500,000 | |
| Restoration | Capital | Swan Creek restoration channel geometry at Pioneer Wav | High potential for restoration according to modelling by EDT - Sediment detention pond upstream. | Unrated | 1, 3 | N/A | Instream, riparian | Instream wetland, riparian | N/A | Coho | Chum | Conceptual | Design and Permittive | \$50,000 | Construction | \$350,000 | Construction | \$350,000 | 2010 | Unknown | \$400,000 | \$60,000 | \$340,000 | |
| Restoration | Capital | Upper White - Greenwater River/ Huckleberry Creek/West Fork White River | Road decommissioning and erosion control treatments (involves removing culverts, constructing cross-drain waterbars, removing hazardous fill from stream crossings and unstable slopes, and blocking roads to vehicles). | Unrated | 4, 1, 3 | Strategy Table 4: road management | Riparian, wetland, upland | Sediment reduction | N/A | Chinook, bull trout, steelhead | Coho, pink, cutthroat | Conceptual; several attempts for feasibility/planning in 2009 have failed | Basic road surveys for risk assessment | Feasibility, planning and permits for Phase 1 | \$15,000 | \$100,000 | Design for Phase 1 | \$100,000 | 2015 | USFS, SPSSEG, Puyallup Tribe | \$1,500,000 | \$225,000 | \$1,275,000 | |
| Restoration | Capital | Sequallitchev Creek Diversion and Streamflow Restoration | Re-route the Fort Lewis water treatment diversion and refill flood control structures to return flows to Sequallitchev Creek | Unrated | 1, 3, 5, 6 | N/A | Instream, riparian | Instream flow | N/A | | | Feasibility | Design and permit | \$50,000 | \$50,000 | Construction | \$300,000 | 2010 | SPSSEG | \$400,000 | \$200,000 | \$200,000 | | |
| Restoration | Capital | Calistoga Setback Levee | Setback levee to reconnect approximately 50 acres of floodplain to the river, allowing for floodplain habitat | New | | Recovery Plan, Chapter 3 | Instream, Riparian, Wetland | Levee Setback to provide Side-Channel, Off-Channel, and rearing protection. | Reconnect 50 acres of floodplain to river channel | Chinook | Bull Trout, Steelhead, Coho, Cutthroat Trout | Conceptual completed, working on feasibility and design | Preliminary Design (30%) | 90% Design | \$150,000 | \$200,000 | Acquisition/Construction | N/A | 2012 Funding Dependent | City of Orting | \$350,000 | \$150,000 | City of Orting, SRFB | |
| Restoration | Capital | South Prairie Creek Restoration (RM 2-4.6) | South Prairie Creek instream and riparian restoration, including LWD placement, removal of rip rap streamside vegetation on over 300 acres and 2 miles of public land | New | | WRIA 10/12 Lead Entity Strategy, Table 4 near-term priority | Instream, Riparian | Instream, Riparian | Up to 2 miles riparian restoration; placement of 6-10 LWD jams; riparian connection | Chinook, steelhead trout | Coho, pink | Conceptual; 60% design funded | Final Design & Permitting | Construction | \$40,000 | \$650,000 | Construction | \$650,000 | 2011 | Pierce County | \$690,000 | \$100,000 | Pierce Co. SWM fee; PSAR/SRFB | |
| Restoration | Capital | South Prairie Japanese Knotweed Control - Phase 1 (RM 0-10) | Survey, control and treatment of Japanese knotweed in riparian areas and floodplain of South Prairie Creek on public and private land | New | | WRIA 10/12 Lead Entity Strategy, Table 4 near-term priority | Instream, Riparian | Instream, Riparian | Up to 10 miles of riparian restoration; 60-100 acres treated | Chinook, steelhead trout | Coho, pink | Conceptual | Conduct "top-down" survey | Control and Treatment | \$15,000 | \$100,000 | Control and Treatment | \$150,000 | 2013 | Pierce County | \$265,000 | \$50,000 | Pierce Co. SWM fee; PSAR/SRFB | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---------|---|--|---------|-------|---|---|---|--|---|--------------------------------|--|--|--|--|---|---|--|----------------------------------|----------|--|------------------------|--|--|-------------|
| Restoration | Capital | Boise Creek Restoration (RM 1-3) | Purchase conservation easements to restore Boise Creek between RM 1 and 3. Improve aquatic habitat while providing increased drainage capacity. | New | 1 | riparian function, LWD, sediment | Recovery Plan | Riparian | Instream, Riparian | Restore 80 acres of riparian habitat and 10,560 linear feet of stream channel, increase fluvial meander and drainage capacity. | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Landowner outreach and feasibility | Landowner outreach, Feasibility, Conceptual design, Purchase of conservation easements | \$75,000 for feasibility and conceptual design; \$250,000-\$400,000 for conservation easements | Formal design, permitting, construction (first phase) | \$1,000,000 | Construction, monitoring, maintenance | \$100,000 | 2012 | King County | \$1,575,000 | \$37,500 (KC SWM, possibly additional sources to reach a total of \$60K for feasibility/conceptual design) | KC SWM, PSAR, SRFB | |
| Restoration | Capital | White River Corridor (Pacfic) Phase 1: Abernethy | Acquire 13 acres of wetland and agricultural lands to allow wetland restoration and side-channel reconnection to the mainstem White River. | New | | Off-channel habitat, LWD | Recovery Plan, Chapter 3 | Instream, Wetland | Instream wetland, riparian | Acquire 13 acres of floodplain, remove fill, reconnect side channels, restore 3-5 acres of wetland, restore riparian vegetation, increase salmon refuge and rearing habitat | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Scoping and property appraisal | Property acquisition, outreach, design development (30%) | \$600,000 | Permitting (70% design), construction | \$400,000 | Monitoring and maintenance | \$50,000 | 2012 | King County | \$1,050,000 | (1) \$225,000.00 (2) \$112,500.00 (3) \$712,500.00 | (1) Conservation Futures Trust (proposed - determined early summer '09) (2) KC Parks Levy (proposed - determined) | |
| Restoration | Capital | White River Corridor (Pacfic) Phase 2: Setback Berm | Acquire 14 houses (White River Estates) in Pacific, remove the houses, restore 1000 ft of riparian buffer, construct a setback berm to provide flood protection to City of Pacific. | New | | Off-channel habitat, LWD, riparian habitat | Recovery Plan, Chapter 3 | Instream, Riparian, Wetland | Instream wetland, riparian | Restore 1000 ft of riparian vegetation, acquire and remove development in the floodplain, create and restore side channel habitat and flood refuge for salmonids | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Conceptual | Landowner negotiations and property acquisitions | \$1.5 - 7 million | Landowner negotiations and property acquisitions; Phase I construction (out of water) | \$1.5-7 million (acquisition); \$2 million (construction) | Phase II construction | \$2 million | 2012 | King County | \$7,000,000+ | (a) grant sources TBD (b) KC Flood Control District Funds 2010 - 2014 | | |
| Restoration | Capital | Setback Levees in and near City of Summer Jurisdiction (White River - 24th Street) Puyallup River - Summer Setback (left bank) | After a feasibility study is used to further a couple of the projects in and adjacent to Summer we would like to move forward with any acquisition and construction. | New | 1,3 | | Strategy Table 3: setback levees, floodplain reconnection | Instream, riparian, upland, wetland | instream, wetland, riparian | Reconnect 22 acres of floodplain to river channel | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Conceptual with preliminary feasibility coming shortly | Finalize Feasibility and start property acquisition | \$1,000,000 | Design and Construction | \$2,500,000 | Finish Construction | \$3,192,320 | Aug 2011 | Sumner, Puyallup, Pierce County | \$7,289,320 | \$97,000 (Summer); ? (Puyallup); ? (Pierce Co.) | PSAR, SRFB | |
| Restoration | Capital | Chambers Bay Estuarine and Riparian Enhancement | Enhance estuarine and riparian habitat structure within Chambers Bay. | New | | Nearshore foraging, rearing and migration, riparian | WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4 | estuary, riparian and nearshore | nearshore restoration | 6 ac riparian, 2acre estuary | Chinook | Chum, coho and pink | Conceptual completed, feasibility started | feasibility and design | \$11,620 | Final Design and permitting | \$377,730 | Construction& Planting | \$1,711,000 | 2011 | SPSSEG | \$2,100,000 | \$315,000 | SRFB, PSAR, ESRP | |
| Restoration | Capital | Chambers Beach Reconstruction and Riparian Enhancement | Reconstruct a natural beach profile along Chambers Beach through removal of derelict structures, active nourishment of degraded areas and reconstruction of back beach berm where the bank is unstable. Restore a riparian corridor through removal of invasive species and planting of native vegetation. | New | | Nearshore foraging, rearing and migration, riparian | WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4 | riparian and nearshore | nearshore restoration | 1.5 miles of beach, 9 ac riparian | Chinook | Chum, coho and pink | Conceptual completed, feasibility started | feasibility, final design and permitting | \$309,000 | Construction | \$1,127,694 | Planting | \$263,306 | 2011 | SPSSEG | \$1,700,000 | \$255,000 | SRFB, PSAR, ESRP | |
| Restoration | Capital | Clearwater LWD Project | Strategic placement of several large wood debris structures/engineered log jams in the Clearwater River | New | | LWD, instream habitat | WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4 | instream | instream habitat restoration | up to three miles of instream habitat | Chinook, coho | pink, steelhead, bull trout and cutthroat | Conceptual | Feasibility and preliminary design | \$15,000 | Final Design and permitting | \$195,000 | Construction& Planting | \$440,000 | 2011 | SPSSEG | \$650,000 | \$97,500 | SRFB, PSAR | |
| Restoration | Capital | Implement Levee Setback Projects from the Levee Setback Feasibility Study | Implement projects from the Levee Setback Feasibility Analysis for the Puyallup River Watershed (this study identified 32 levee setback sites on the Puyallup, Carbon and White Rivers for potential future restoration to reconnect the river to the floodplain) | New | 1,3 | | Strategy Table 3: setback levees, floodplain reconnection | Instream, riparian, upland, wetland | instream, wetland, riparian | Variable acreage of floodplain reconnection per site | Chinook | Steelhead, bull trout, coho, pink, cutthroat | Conceptual | Select levee setback site | | Feasibility and preliminary design | TBD | Final Design and permitting | TBD | 2013 | Pierce County, Sumner, Puyallup, Fife, Orting, King County | TBD | | | |
| Acquisition for Restoration | Capital | Puyallup River (Union Pacific) Intertidal Levee (RM 2.6-3.0) | Acquire up to 30 acres of floodplain and former intertidal habitat; construct setback levee and restore intertidal habitat in the transition zone for juvenile rearing. | New | 1 | | Strategy Table 3: create off-channel estuarine habitat | freshwater-estuarine/transition zone | levee setback and excavation | Acquire and restore up to 30 acres | Chinook | chum, bull trout, steelhead, coho, pink | Conceptual | Acquisition | \$4,500,000 | Design and permit | \$300,000 | Construction | \$3,700,000 | 2011 | Pierce County, PTF, Port of Tacoma | \$8,500,000 | \$3,900,000 | \$4,600,000 | |
| Acquisition for Protection | Capital | Middle Puyallup River Acquisition | Acquire and restore approx. 250 acres along the Puyallup River | | | Floodplain connection, side channel access, riparian conditions and LWD | Recovery Plan, Chapter 4 - high priority areas for restoration and protection | Riparian (including floodplain, side channel and backwater habitats), wetland | Floodplain protection, off channel access protection, riparian restoration | Acquire and restore up to 250 acres | Chinook | BT, Coho, Chum, ST, Pink | Landowner interest secured | Acquisition and restoration | \$580,000 | | \$20,000 | Follow up restoration (invasive plant control, native plant maintenance) | n/a | 2014 | Cascade Land Conservancy | \$600,000 | \$100,000 | | |
| Acquisition for Restoration | Capital | Marine View Drive Acquisition and Nearshore restoration | In Commencement Bay in front of Marine View Drive. Create intertidal habitat adjacent to the Trustee's area. Foss Loo storage - \$50K per acre. Completes the purchase, preservation, and restoration of the properties detailed in the recovery strategy. Project benefits coho and Chinook. It brings total of this restoration action to approx. 35 acres of the most productive habitat on this work of the Hylebos. | Unrated | 2 | | Strategy Table 4: Commencement Bay intertidal habitat | Nearshore embayment | Nearshore Restoration | N/A | Chinook | coho, chum, pink and forage fish | Feasibility | | | | | | | | 2011 | Port of Tacoma | \$1,000,000 | | |
| Acquisition for Restoration | Capital | West Hylebos acquisition | preservation, and restoration of the properties detailed in the recovery strategy. Project benefits coho and Chinook. It brings total of this restoration action to approx. 35 acres of the most productive habitat on this work of the Hylebos. | Unrated | 1,3 | N/A | N/A | Instream, riparian, upland | Land protected/acquired | N/A | | | Conceptual | Property negotiations, Appraisals | Depends on property negotiations | Property negotiations, Appraisals, Purchases | Depends on property negotiations | Property negotiations, Appraisals, Purchases | Depends on property negotiations | | 2011 | Friends of the Hylebos | \$1,500,000 | \$500,000 | \$1,000,000 |
| Acquisition for Protection | Capital | White River Land Acquisition | Purchase up to 60 Tier 1 parcels according to ecological priorities identified in "Ecological Preservation Priorities in the White River Sub-Basin." | New | | Riparian habitat, LWD | Chapter 3 | riparian, upland, floodplain | property acquisition | Acquire 300+ acres of high priority land for salmon recovery. | Chinook, steelhead, bull trout | coho, chum, pink, cutthroat | Property prioritization and being completed | | \$2,000,000 | | \$2,000,000 | | \$2,000,000 | 2014 | King County | \$6,000,000 | \$585,000 | KC CFT (300K), KC Parks Levy (285K), PSAR, SRFB | |
| Acquisition for Protection | Capital | South Prairie Creek Acquisition (RM 0-8) | Protect 60-120 acres of instream and riparian habitat along South Prairie Creek, primary tributary to the Carbon River and the most important salmonid spawning area in the Puyallup watershed | | 1,3,5 | | Strategy Table 4: protect functioning habitat | Instream, riparian, upland | Land protected/acquired | Preserve 60-120 acres | Chinook | Steelhead, bull trout, chum, coho, pink, cutthroat | | Acquisition | \$400,000 | Acquisition | \$400,000 | | | 2011 | Pierce Co. Water Programs, Cascade Land Conservancy | \$800,000 | \$200,000 | \$600,000 | |
| Hatchery | | Improvements at the Buckley Fish Trap | Explore opportunities to improve fish passage at Buckley | New | | | App. A - H- integration in WRIA 10 | Instream | fish passage | Improve fish handling and passage | Chinook | Steelhead, coho, bull trout, pink, chum, sockeye | Conceptual | Identifying opportunities for improvement | \$30,000 | Design of modification | \$75,000 | Construction | ??? | | ACOE, MIT, BIT, WDFW | | | PSAR, SRFB | |
| | Capital | Voights Creek Hatchery Adult Facilities | Construct adult facilities consisting of holding/rearing units, fishway, sorting system with crowder, reuse water jump w/pumps, crowders, bird predation covers, and security fence with alarms | Unrated | | | App. A - H- integration in WRIA 10 | Hatchery project | Construct rearing facilities | Improve adult fish facilities | Chinook | | | Scoping, design, permitting | \$505,000 | Construction | \$1,508,000 | Construction | \$1,508,000 | 2011 | WDFW - RAC | \$3,520,000 | \$505,000 | | |
| | Capital | Voights Creek Hatchery Clarifier | Construct 2 bay clarifier, provide cover for pollution abatement ponds, control/sediment system | Unrated | | | App. A - H- integration in WRIA 10 | Hatchery project | | Improve water quality | | | | | | | | | | 2011 | WDFW - RAC | \$896,800 | | | |

| Project Category | Project Name | Description | Status | Priority | WRIA | Watershed | Species | Phase | Start | End | Funding Source | Amount | Total | Other | | | | | | | | |
|------------------------------------|---|---|---------|----------|-----------------------------------|--|---|--|------------------------|-----------------------|----------------|---|--|---|-------------|--|------------------------------|--|----------------------------|-----------|-----------|-----------|
| Capital | Chambers Creek Adult Trap and Juvenile Acclimation Facility Improvements | Rebuild ponds and intake, and install pollution abatement system (HSRG recommendations) to improve upstream passage for non-target wild stocks; improve acclimation for smolts and adult holding for returning chinook; establish pollution abatement system for effluent; and improve screen to minimize impacts on wild stocks. | Unrated | | App. A - H-Integration in WRIA 12 | Hatchery project | Implement HSRG recommendations; improve wild stocks | Design, permitting, construction | \$1,600,000 | Construction complete | \$1,600,000 | | | WDFW - Legislature - CTED (bridge component) | \$3,200,000 | | | | | | | |
| | Harvest | | | | | | | | | | | | | | | | | | | | | |
| | Hydropower | | | | | | | | | | | | | | | | | | | | | |
| | Other | | | | | | | | | | | | | | | | | | | | | |
| | Total Capital Need | | | | | | | | | | | | | | | | | | | | | |
| | Non-Capital Programs | | | | | | | | | | | | | | | | | | | | | |
| | Harvest Management Support | | | | | | | | | | | | | | | | | | | | | |
| Future Habitat Project Development | Sequalitchew Watershed Restoration Planning | Initiate stakeholder coordination for long-term watershed recovery of Sequalitchew Creek. | New | | WRIA 12 Limiting Factors Analysis | Fish Passage, instream flows, instream habitat, estuarine, nearshore, riparian | Sequalitchew watershed | Planning | 30,000 | Planning | 30,000 | Planning | 30,000 | 2011 | SPSSEG | \$90,000 | \$13,500 | | | | | |
| Future Habitat Project Development | Chambers Creek Restoration - feasibility and assessment | This project includes an assessment and feasibility study of Chambers Creek between RM 0-4 to determine the restoration needs in this reach | New | | | | | | | | | | | | | | | | | | | |
| Future Habitat Project Development | White River Restoration Assessment | Evaluate historic and current reaches of the White River important for salmon habitat and identify 10 priority habitat restoration actions that can be implemented within 10 years. | New | All | Chapter 3 | Riparian, floodplain, tributary | acquire, instream, riparian | Identify and prioritize projects | Conceptual | | | Assessment and report writing | 75,000 | | King County | \$75,000 | PSAB, SRFB | | | | | |
| Future Habitat Project Development | Greenwater LWD study | Effectiveness monitoring of Greenwater LWD project and assessment for placement of several LWD structures (mostly jams) throughout Greenwater mainstem and some tributaries: LWD structure placement: \$50K/jam + 20 jams. | Unrated | 1,3 | | | | | | | | Gather baseline pre-construction data related to habitat quality and function of Greenwater system. Review Existing Inventory; Staff up; Prioritize Reaches | \$50,000 | Gather post-construction and change analysis data | \$50,000 | Perform assessment and feasibility study for placement of additional ELs | \$100,000 | 2011 | SPSSEG | \$200,000 | \$100,000 | \$100,000 |
| Future Habitat Project Development | Update regional Culvert Study | Re-evaluate the system to check on work done since the original study was completed - function of those removed and make sure there are not any new ones. | Unrated | 7 | | | | | | | | Conduct Inventory; Prepare Final Report | \$110,000 | \$110,000 | \$110,000 | 2011 | Pierce Conservation District | \$320,000 | \$70,000 | \$250,000 | | |
| | Habitat Protection | | | | | | | | | | | | | | | | | | | | | |
| | Watershed Plan Implementation | | | | | | | | | | | | | | | | | | | | | |
| | Technical Support | Provide access to state and local agency resources for better coordination and integration of plan components. Also to ensure the support of NOAA's TRT remains constant to help with the salmon recovery efforts. | Unrated | | | | | | | | | Scientific support | \$85,000 | Scientific support | \$85,000 | Scientific support | \$80,000 | Ongoing | Pierce County | \$250,000 | \$100,000 | \$150,000 |
| | Develop Nearshore projects | Use comparable benefits protocols for synchronized project selection - Using existing nearshore assessments develop protocols for nearshore project identification, development and prioritization | Unrated | | | | | | | | | \$10,000 | near-shore coordinator to develop South Sound Salmon recovery plan | | | | | Ongoing | SPSSEG | \$10,000 | \$10,000 | |
| | Create South Puget Sound Regional Organization | Create South Puget Sound Regional Organization to develop, coordinate, and implement South Sound Salmon recovery plan | Unrated | | | | | | | | | Reach Agreement | \$80,000 | Coordinate and monitor implement of the plan | \$80,000 | Ongoing | SPSSEG | \$160,000 | \$160,000 | | | |
| | Outreach & Education | | | | | | | | | | | | | | | | | | | | | |
| | Communications/ Public outreach support | Technical help to coordinate public education and outreach between the numerous agencies and organizations working in the watersheds. A significant effort would be placed in web-based access to actions, opportunities and goals. | Unrated | | | | | | | | | Public outreach | \$30,000 | Public outreach | \$25,000 | Public outreach | \$25,000 | Ongoing | Pierce County | \$80,000 | | |
| | CHB - pollution hotline | Consolidated citizen/agency hotline for reporting potential toxic problems. Follow up and correction of issues/results from the calls. | Unrated | | | | | | | | | Broaden education reach in Tacoma area | \$5,000 | Expand geographically to adjacent shores and waterways. | \$10,000 | Expand to South Sound and adjacent shorelines. | \$15,000 | Ongoing once at target geographic area | Citizens for a Healthy Bay | \$30,000 | \$15,000 | \$15,000 |
| | CHB - Bay Watcher | Weekly on the water patrols cover entire Commencement Bay shoreline. Also weekly foot patrol to specific hot spots or outfalls. - \$20K per year. | Unrated | | | | | | | | | Expand geographically to adjacent shores and waterways. | \$30,000 | Expand coverage of South Sound. | \$20,000 | Expand education to target geographic area | \$10,000 | Ongoing once at target geographic area | Citizens for a Healthy Bay | \$60,000 | \$40,000 | \$20,000 |
| | Salmon Recovery Outreach | Create Outreach Function targeted at Salmon Recovery | Unrated | | | | | | | | | Hire Ed and Outreach Coordinator and develop program | \$60,000 | Implement program | \$30,000 | Implement program | \$30,000 | Ongoing | SPSSEG | \$120,000 | \$120,000 | |
| | White River Watershed Stewardship Program | Enforcement, education, engineering (according to Forest Plan) dos and don'ts on recreation in habitat areas. Providing aquatic conservation education services to Forest recreators along sensitive stream | Unrated | | | | | | | | | See details in project description | \$30,000 | See details in project description | \$30,000 | See details in project description | \$30,000 | Ongoing | USFS | \$90,000 | \$10,000 | \$80,000 |
| | Instream Flow | | | | | | | | | | | | | | | | | | | | | |
| | Habitat Project Monitoring | | | | | | | | | | | | | | | | | | | | | |
| | Nearshore effectiveness monitoring | Develop and implement a nearshore effectiveness monitoring plan for future restoration projects | Unrated | | | | | | | | | Develop monitoring plan to assess nearshore processes and response to restoration. Collect baseline data | \$150,000 | Carry out monitoring and assessment actions | \$50,000 | Carry out monitoring and assessment actions | \$50,000 | Ongoing | SPSSEG | \$300,000 | \$300,000 | |
| | Stock Monitoring | | | | | | | | | | | | | | | | | | | | | |
| | Smolt trapping - Puyallup River | Operate smolt trap on the Puyallup River - \$150,000 per year - includes manning site | Unrated | | | | Chinook | Steelhead, coho, chum, pink, cutthroat | Ongoing smolt trapping | \$150,000 | Ongoing | \$150,000 | Ongoing | \$150,000 | Ongoing | Puyallup Tribe | \$450,000 | | | | | |
| | Smolt trapping - White River | Operate smolt trap on the White River - \$150,000 per year - includes man on site (initiate long-term screw trapping of White River) | Unrated | | | | Chinook | Steelhead, coho, chum, pink, cutthroat | Install smolt trap | \$150,000 | Ongoing | \$150,000 | Ongoing | \$150,000 | Ongoing | Tribes (PTI, MIT) | \$450,000 | | | | | |
| | Smolt trapping - South Prairie Creek | Operate smolt trap on South Prairie Creek - \$150,000 per year - includes man on site | Unrated | | | | Chinook | Steelhead, coho, chum, pink, cutthroat | Install smolt trap | \$150,000 | Ongoing | \$150,000 | Ongoing | \$150,000 | Ongoing | Tribes (PTI, MIT) | \$450,000 | | | | | |

