

Puyallup-White and Chambers-Clover Creek Watersheds (WRIAs 10 & 12)

2012 Three Year Work Program Update Narrative to Three-Year Project List

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 2012 3-year watershed implementation priorities list was updated from the 2011 3-year list, with input from project sponsors and the Technical Advisory Group (TAG) and the Citizens Advisory Committee (CAC) of the Pierce County Lead Entity (WRIAs 10 and 12).

The 2012 3-year project list contains 46 habitat capital projects and 3 hatchery capital projects for a total of 49 capital projects. In addition, there are 26

non-capital programs (e.g., future project development, monitoring, education/outreach, stewardship, etc.).

Three-Year Work Program Questions

Consistency

- 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.

Pace/Status

- 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. The completed, funded, and new projects on the 3-year list are shown below. Unfortunately, the pace of implementation is limited by funding availability. The WRIA 10 and WRIA 12 combined allocation of both SRFB and PSAR funding has been between \$2.0-3.0 million annually. Unfortunately, the 2011-13 State biennial budget includes PSAR funding at less than half the 2009-11 funding level. 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.

Despite the challenges of funding salmon recovery projects, the WRIA10/12 watershed has made great progress over the last year implementing high priority recovery actions:

Projects Completed in 2011-12

- Boise Creek Fish Passage & Channel Relocation (installation)
- Greenwater R. ELJs
- Nearshore monitoring was conducted on 780 feet of coastline

Projects Funded in 2011:

- Clearwater River Road Removal (Phase 2)
- Puyallup River South Fork Restoration (Phase 1)
- White River Knotweed Eradication (Phase 1)
- Calistoga Setback Levee Construction Budget Addition
- Floodplain Restoration Project at Fennel Creek (Design and Construction)

New Projects on 2012 3-Year List:

- Sheras Falls Barrier Removal
- Chambers Estuary Restoration Planning
- SPC Riparian Restoration Planning Project
- White River Knotweed Eradication Project
- Improvements at the Buckley Fish Trap

Updated (Active) Projects on 2011 3-Year List:

- Titlow Estuary Restoration
- Sequelitchew Creek Diversion and Streamflow Restoration.
- East Hylebos Ravine Habitat Restoration
- South Prairie Creek Acquisition
- White River Knotweed Eradication Project
- Greenwater River Restoration (Phase 3)

In addition to capital projects, programmatic actions are underway. Pierce County has recently completed the draft Pierce County Rivers Flood Hazard Management Plan. The purpose of the plan is to recommend regional policies,

programs, and projects that reduce the risks to public health and safety, reduce property damage from flooding and channel migration, and to maintain or improve habitat conditions in major rivers of Pierce County.

The Pierce County Shoreline Master Program update is ongoing. The County has completed a shoreline inventory and analysis report, identified draft Shoreline Environmental Designations, and developed draft policies and regulations. The Shoreline Restoration Plan and cumulative impacts report is still under development.

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 detail if you choose.

As described in the previous section, some progress is being made in restoring and protecting habitat in the WRIAs 10 & 12. However the pace of restoration and protection is slow. Harvest and hatchery management goals are described in the following section *Recovery Plan Overview and Watershed Priority Summary*. The Pierce County Lead Entity has allocated a portion of its PSAR capacity funds toward Adaptive Management and Monitoring, including examination of H-Integration efforts in the Puyallup-White watershed.

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 Fennel Creek 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, Clearwater River, and Greenwater River. The WRIA 11/12 nearshore assessment has been finalized. Seven restoration projects along the WRIA 12 shoreline are on the 3-year project list. Through the Army Corps of Engineers PSNERP process, Chambers Bay and Sequatchew Creek Estuary projects were designed to the 10% level. Five restoration projects in the Puyallup estuary and Commencement Bay 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.

Fish passage improvements are also needed at the Buckley Diversion Dam. Pink salmon arrive in high numbers at the Army Corps of Engineers Buckley diversion dam and overwhelm the fish passage facility on odd-numbered years. Inefficiencies at the facility have severely hindered the passage of spring Chinook, coho and other species. It is now expected that this hindrance will be the major limiting factor to survival of Chinook and coho on the White River.

Funding is needed in order to successfully implement projects. 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 few years.

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 WRIA 10/12 Lead Entity has not changed its top priority actions from the previous three-year work program. The greatest change in the approach for salmon recovery over the past year has been the launch of the Pierce County Rivers Flood Hazard Management Plan process, and the continued progress on the Pierce County Shoreline Master Program update. Both efforts promise to improve habitat protection efforts and identify potential restoration actions along the major rivers in Pierce County.

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

In general, we do not have a well developed monitoring program to assess habitat and salmon population status and trends. The Buckley fish trap on the White River provides excellent estimates of adult White River Spring Chinook returns, which have increased substantially over the last decade and are routinely above 1000 returning adults per year. Spawner surveys on South Prairie Creek provide rough escapement estimates for the Puyallup River. Estimates do not show substantial changes in escapement trends since ESA listing of Puyallup Fall Chinook.

We have not focused a lot of effort on the topic of Adaptive Management and Monitoring 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. However, the Pierce County Lead Entity has allocated a portion of its PSAR capacity funds toward participating in the RITT-lead Adaptive Management effort. In addition, the three-year list identifies seven monitoring activities that would be important elements of an adaptive management and monitoring plan:

- Improvements at the Buckley fish trap
- Smolt trapping - Puyallup River
- Smolt trapping - White River
- Smolt trapping - South Prairie Creek
- Smolt trapping - Chambers Creek
- Mud Mountain Dam mortality study
- Fish tagging for Chinook Tracking

Once the regional AMM framework is established and approved, and if funding support for monitoring becomes available, WRIA 10/12 can develop watershed specific recommendations on monitoring and adaptive management.

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

The greatest challenges are finding levels of funding that achieve an appropriate pace of implementation; accomplishing restoration in the vicinity of railroads on the WRIA 12 marine nearshore; conducting restoration in the Puyallup estuary; and addressing juvenile mortality associated with the Electron Dam diversion.

[Note: The following section was submitted as part of the 2009 three-year list narrative. It continues to provide an excellent overview of salmon recovery in the Puyallup-White and Chambers-Clover Creek watersheds.]

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.

Pierce County Lead Entity (WRIA 10/12) 2011 3-year Work Program																							
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 1=ready for application 2=not ready; 3=not good fit to Strategy	Limiting Factors	Reference for limiting factor (Recovery Plan, Chapter 3 - Habitat)	Type (HWS riparian, estuary river delta, nearshore, etc.)	Type (HWS fish passage, instream flow, sediment)	Project Performance (restore 30 acres of floodplain)	Primary Species Benefiting	Secondary Species Benefiting	Status (Conceptual, Feasibility completed, land acquisition completed, design completed)	2012 Activity to be funded	2012 Estimated Cost	2013 Activity to be funded	2013 Estimated Cost	2014 Activity to be funded	2014 Estimated	Likely End Date	Likely Sponsor	Total Cost of Project	Local share or other funding	Source of funds (PSAR, SRFB, other)
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 reconnection	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	Construction	\$4,500,000	2011	Pierce County Surface Water Management	\$4,700,000	\$1,570,000	\$3,130,000
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	Boise Creek Golf Course Segment Restoration	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	Feasibility; 35% design funded in 2008 Round	Survey, Design, Engineer	\$150,000	Construction	\$2,050,000		2010	PTF, PRP, King County, Enumclaw	\$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	\$100,000	Construction	\$450,000		2010	King County, Puyallup Tribe	\$550,000	\$100,000	\$450,000	
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	Table 3: Need adequate screening on diversion canal	Instream	Fish passage, fish screen	N/A	Chinook	Steelhead, bull trout, coho, pink, cutthroat	Feasibility	Conceptual design, scoping	\$100,000	Design, permitting	\$250,000	Construction	\$5,650,000	2011	SPSSEG, Puyallup Tribe, PS Energy	\$6,000,000	\$1,000,000	\$5,000,000
Restoration	Capital	Sequalitchew 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	\$20,000	Permitting/Implementation/Construction	\$200,000	Implementation, monitoring and maintenance	\$130,000	2012	SPSSEG	\$350,000	\$20,000	\$297,500
Restoration	Capital	Calistoga Setback Levee	Setback levee to reconnect approximately 50 acres of floodplain to the river, allowing for floodplain habitat	1		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%)	\$150,000	90% Design	\$200,000	Acquisition/Construction	N/A	2012 Funding Dependant	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 revegetation on over 300 acres and 2 miles of public land	Unrated		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; floodplain connection	Chinook, steelhead trout	Coho, pink	Conceptual; 60% design funded			Final Design & Permitting	\$40,000	Construction	\$650,000	2011	Pierce County	\$690,000	\$100,000	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/terrestrial habitat while providing increased drainage capacity.	Unrated		Recovery Plan	Riparian	Instream, Riparian	of riparian habitat and 10,560 linear feet of stream channel, Increase fluvial meander and drainage capacity	Chinook	Steelhead, bull trout, coho, cutthroat	Landowner outreach and feasibility		feasibility and conceptual design; \$250,000-\$400,000 for	Formal design, permitting, construction (first phase)	\$1,000,000	Construction, monitoring, maintenance	\$100,000	2012	King County	\$1,575,000	SWM, possibly additional sources to reach a total of \$60K for feasibility/	KC SWM, PSAR, SRFB
Restoration	Capital	Sequalitchew Estuary Reconnection	Restore fish passage and tidal hydrology to the Sequalitchew Creek Estuary through installation of a large span bridge or trestle under the BNSF railroad across the mouth of Sequalitchew Creek	New		Strategy Table 4: WRIA 12 intertidal habitat	estuary, riparian and nearshore	Nearshore Restoration	32 acres of estuary	Chinook	coho, chum, pink and forage fish	Conceptual	Preliminary Design	\$20,000	Final Design and permitting	\$200,000	Construction	\$9,780,000	2013	SPSSEG	#####	\$1,500,000	SRBD, PSAR, ESRP
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	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)	\$40,000	Monitoring, maintenance	\$20,000	Monitoring, maintenance	\$40,000	Construction Complete 2007	WDNR	\$900,000	\$250,000 DNR, \$40,000 Ecology; \$500,000 NRDA	
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 reconnection	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	\$200,000	Property acquisition, design, and permitting	\$375,000	Construction, monitoring and maintenance	\$1,000,000	2010	King County	\$1,575,000	\$400,000	\$1,175,000
Restoration	Capital	Pocket Beach Enhancement/ Nourishment Pilot: Sequalitchew to Solo Point	Target existing pocket beaches persisting waterward of the BNSF rail line between Sequalitchew Creek and Steilacoom 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	\$109,683	Construction	\$365,610	Monitoring	\$80,000	2011	SPSSEG	\$602,300	\$90,345	\$511,955

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Project Type	Plan Category	Project Name	Project Description (brief description)	Priority tier 1=ready for application 2=not ready; 3=not good fit to Strategy	Limiting Factors	Reference for limiting factor (Recovery Plan, Chapter 3 - Habitat)	Type (HWS items - i.e. riparian, estuary river delta, nearshore, etc.)	Type (HWS items - i.e. fish passage, instream flow, sediment)	Project Performance (restore 30 acres of floodplain)	Primary Species Benefiting	Secondary Species Benefiting	Status (Conceptual, Feasibility completed, land acquisition completed, design completed)	2012 Activity to be funded	2012 Estimated Cost	2013 Activity to be funded	2013 Estimated Cost	2014 Activity to be funded	2014 Estimated Cost	Likely End Date	Likely Sponsor	Total Cost of Project	Local share or other funding	Source of funds (PSAR, SRFB, other)
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		Strategy Table 4: WRIA 12 intertidal habitat	Nearshore beaches	Nearshore restoration	N/A	Chinook	Chum, pink, coho	Conceptual	Remedial Investigation / Feasibility Study	\$ 150,000	Design, permitting	\$ 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		Strategy Table 4: WRIA 12 intertidal habitat	Instream	Instream wetland, riparian	0.2 acres rearing habitat	Coho		Conceptual; 30% design funded	Design, Permitting	\$9,000	Construction	\$71,000	Monitoring & maintenance	\$2,000	2013 monitoring	Puget Creek Restoration Society	\$80,000	\$20,000	\$60,000
Restoration	Capital	Hylebos Creek Nearshore Restoration	NRDA alternative site. Mitigation - Construction of 2 acre restoration area. Located on the Hylebos Creek - tidal influence	Unrated		N/A	Nearshore embayment	Riparian, instream wetland	N/A	Chinook	coho	N/A	Construction	\$1,000,000	Monitoring	\$5,000	Monitoring	\$5,000	2013	Port of Tacoma/Tacoma	\$1,000,000		N/A
Restoration	Capital	Restoration - Hylebos Mouth	Restoration of property owned by WSDOT. Revegetation of tidal mud flats to encourage development of marsh habitat	Unrated		N/A	Nearshore embayment	Revegetation	N/A	Chinook	coho	N/A	Design, permitting, Acquisition, construction	\$90,000	Monitoring, maintenance	\$5,000	Monitoring, maintenance	\$5,000	2008 - construction 2010 - maintenance	Friends of the Hylebos	\$100,000	\$25,000	\$75,000
Restoration	Capital	Swan Creek restoration channel geometry at Pioneer Way	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 Permitting	\$ 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	\$15,000	Feasibility, planning and permits for Phase I	\$100,000	Design for Phase 1	\$100,000	2015	USFS, SPSSEG, Puyallup Tribe	\$1,500,000	\$225,000	\$1,275,000
Restoration	Capital	Narrows and Sequatchew-Steliacoom Feeder Bluff Reconnection	Reconnect priority (historic) feeder bluffs along Nisqually to Point Defiance shoreline in the Tacoma Narrows and between Sequatchew Creek and Steliacoom to restore lost process of sediment input. Feeder bluff reconnection could be accomplished by installing trestles under the BNSF railroad at key locations.	New		WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4	riparian and nearshore beaches	nearshore restoration	Feeder Bluffs in 3, 2-4 mile drift cells	Chinook	Chum, coho and pink	Conceptual completed	feasibility, final design and permitting	\$300,000	Construction	1,000,000 to 10,000,000	Monitoring	\$100,000	2013	SPSSEG	\$10,400,000	\$1,560,000	\$511,955
Restoration	Capital	Salmon Creek Culvert Replacement	Remove fish barriers and replace existing culverts along Salmon Creek, thereby increasing the hydraulic capacity which will sequentially reduce flooding as well as improve salmon habitat. Explicitly, the intent of the project is to design and upgrade two volumetrically inadequate culverts known as Parker Road Culvert and Sumner Watershed Culvert. The new sufficiently designed structures will allow safe passage and a quality reproductive habitat for salmon generations, especially fall Chum and the nearly endangered Chinook salmon. This project will open up approximately 3800 feet of Salmon Creek.	New	1, 3, 4, 6, 7	N/A	instream, riparian	fish passage, instream flow, sediment reduction, riparian enhancement	replace 2 culverts, reconnect 3800 feet of stream habitat	Chinook	Chum, coho and pink	Conceptual	Design, permitting, construction	\$631,000						City of Sumner	\$631,000	\$94,650	\$536,350
Restoration	Capital	Titlow Estuary Restoration	Replace culvert/tidegate through BNSF railroad to improve connectivity and fish passage between Titlow lagoon and Puget Sound; enhance lagoon and beach habitat functionality	2		WRIA 10/12 Salmon Habitat Protection and Restoration Chapter 4	estuary, riparian and nearshore	fish passage, nearshore restoration	6 ac riparian and 5.5 acres of estuary	Chinook	Chum, coho and pink	Conceptual completed, feasibility started	feasibility and design	80,000	Final Design and permitting	150,000	Construction & Planting	7,470,000	2013	SPSSEG, People for Puget Sound, Metro Parks	\$7,700,000	\$1,155,000	SRFB, ESRP, NFWF, Metro Parks, BNSF
Restoration	Capital	South Prairie Creek 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	Unrated		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	\$15,000	Control and Treatment	\$100,000	Control and Treatment	\$150,000	2013	Pierce County	\$265,000	\$50,000	Pierce Co. SWM fee; PSAR/SRFB

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Project Type	Plan Category	Project Name	Project Description (brief description)	Priority tier 1=ready for application 2=not ready; 3=not at good fit to Strategy	Limiting Factors	Reference for limiting factor (Recovery Plan, Chapter 3 - Habitat)	Type (HWS items - i.e. riparian, estuary river delta, nearshore, etc.)	Type (HWS items - i.e. fish passage, instream flow, sediment)	Project Performance (restore 30 acres of floodplain)	Primary Species Benefiting	Secondary Species Benefiting	Status (Conceptual, Feasibility completed, land acquisition completed, design completed)	2012 Activity to be funded	2012 Estimated Cost	2013 Activity to be funded	2013 Estimated Cost	2014 Activity to be funded	2014 Estimated	Likely End Date	Likely Sponsor	Total Cost of Project	Local share or other funding	Source of funds (PSAR, SRFB, other)
Capital Projects																							
Future Habitat Project Development		Sequalitchew Watershed Restoration Planning	Initiate stakeholder coordination for long-term watershed recovery of Sequalitchew Creek.	Unrated	Fish Passage, instream flows, instream habitat, estuarine, nearshore, riparian	WRIA 12 Limiting Factors Analysis	instream, nearshore, estuarine	Watershed Restoration Planning	Sequalitchew Watershed	coho	chinook, chum, pink, steelhead and cutthroat	Planning	Planning	30,000	Planning	30,000	Planning	30,000	2011	SPSSEG	\$90,000	\$13,500	
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	Unrated	All	Chapter 3	Riparian, floodplain, tributary	acquisition, instream, riparian	Identify and prioritize projects	Chinook	Steelhead, bull trout, pink, chum, coho	Conceptual				Assessment and report writing	75,000			King County	\$75,000		PSAR, 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.	\$50,000	Gather post-construction and change analysis data	\$50,000	Perform assessment and feasibility study for placement of additional ELJs	\$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						Review Existing Inventory; Staff up; Prioritize Reaches	\$110,000	Conduct Inventory	\$110,000	Conduct Inventory; Prepare Final Report	\$100,000	2011	Pierce Conservation District	\$320,000	\$70,000	\$250,000	
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	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	
Acquisition for Protection	Capital	Middle Puyallup River Acquisition	Acquire and restore approx. 250 acres along the Puyallup River	1	Floodplain connection, side channel access, riparian conditions and LWD	Recovery Plan, Chapter 4 - high priority areas for restoration and protection	Instream, Riparian (including floodplain, side channel and backwater habitats), Upland	Floodplain protection, off-channel access, riparian restoration	Acquire and restore up to 250 acres	Chinook	BT, Coho, Chum, ST, Pink	Landowner interest secured	Acquisition and restoration	\$580,000	Acquisition, riparian restoration design, permitting and implementation	\$20,000	Follow up restoration (invasive plant control, native plant maintenance)	n/a	2011	Cascade Land Conservancy	\$600,000	\$100,000	
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."	Unrated	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 tiering completed	\$2,000,000	Property acquisition/conservation easements (depends on landowner willingness, time to process, etc)	\$2,000,000	Property acquisition/conservation easements (depends on landowner willingness, time to process, etc)	\$2,000,000	2014	King County	\$6,000,000	\$585,000	KC CFT (300K), KC Parks Levy (285K), PSAR, SRFB	
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 Log storage - \$50K per acre	Unrated		2	Nearshore embayment	Nearshore Restoration	N/A	Chinook	coho, chum, pink and forage fish	Feasibility							Port of Tacoma	\$1,000,000			
Acquisition for Restoration	Capital	Puyallup River (Union Pacific) Setback 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	1		2	freshwater-estuary/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 Restoration	Capital	West Hylebos acquisition	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 fork of the Hylebos.	Unrated		1,3	N/A					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/Restoration (Combination)		Matlock Farms Development Rights Purchase and In Stream Restoration	The goal of this project is to conserve this 155 acre working farm in order to preclude its conversion to non-farm uses in order to preserve the ecological values on-site and nearby. The property is in Alderton, near Puyallup, WA. 3,000 linear feet of Puyallup River frontage stretches along the property. Ball Creek cuts through the property.	unrated			Instream, riparian, upland	Land protected/acquired	N/A				Property negotiations, Appraisals	Depends on property negotiations	Property negotiations, Appraisals, Purchases	Depends on property negotiations	Property negotiations, Appraisals, Purchases	Depends on property negotiations		Cascade Land Conservancy			1194000
Capital		Setback Levees in and near City of Sumner Jurisdiction (White River - 24th Street; Puyallup River - Sumner Setback left bank)	After a feasibility study is used to further a couple of the projects in and adjacent to Sumner we would like to move forward with any acquisition and construction	Unrated		1,3	Strategy Table 3: setback levees, floodplain reconnection	Instream, riparian, upland, wetland	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 (Sumner); ? (Puyallup); ? (Pierce Co.)	PSAR, SRFB

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Capital Projects																							
Capital		Voight's Creek Hatchery Adult Facilities	Demolish adult facilities; construct adult facilities consisting of holding/rearing units, fishway, sorting system with crowder, reuse water sump w/pumps, crowdens, 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		Voight's Creek Hatchery Clarifier	Construct 2 bay clarifier, provide cover for pollution abatement ponds, venturi/eductor system	Unrated		App. A - H-integration in WRIA 10	Hatchery project		Improve water quality									2011	WDFW - RAC	\$896,800			
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			2011	WDFW - Legislature - CTED (bridge component)	\$3,200,000			
Capital		Improvements at the Buckley fish trap	Explore opportunities to improve fish passage at Buckley	Unrated		App. A - H-integration in WRIA 10	Instream	fish passage	Improve fish handling and passage	Chinook	Steelhead, coho, bull trout, pink, chum, sockeye	Identifying opportunities for improvement	\$30,000	Design of modification	\$75,000	Construction	???		ACOE, MIT, PIT, WDFW			PSAR, SRFB	
Non-Capital		Chambers Estuary Restoration Planning Project	This project will conduct preliminary planning for the restoration of Chambers Estuary, primarily through acquisition of part or all of the "Abitibi" site. Eventual project outcomes include: Acquisition of property currently zoned industrial for permanent preservation as open space; Removal of fill materials and manmade structures which impede salmon movement and life cycle processes; Restoration of riparian habitat along estuarine shoreline. Successful completion of this project will require a multi-agency effort, and since Chambers Estuary serves as refuge habitat for Nisqually River salmonids, the project has "cross-over" interest for the WRIA 11 Habitat Workgroup as well. The first phase of this planning project will allow the District to convene the agencies and organizations interested in this restoration project, as well as to work with the private landowners whose	3															Pierce Co Cor	\$50,000		SRFB - Salmon Recovery	
Non-Capital		SPC Riparian Restoration Planning Project	This project will complete engineering for removal of manmade structures at the former Inglin Dairy property, now part of the South Prairie Creek Reserve.	3														2/28/2014	Pierce Co Conservation Dist	\$30,000		SRFB - Salmon Recovery Funding Board, Pierce Co Conservation Dist	
Restoration		Greenwater River Restoration Phase 3	This grant serve as a third phase to two projects completed in 2010 and 2011. The phase I and phase II projects collectively installed 13 mid channel engineered log jams and removed nearly a mile of forest road from the floodplain. This project proposes to install 5 additional jams downstream of the phase I and phase II project sites. The five jams are already fully designed and permitted; project actions are shovel ready for construction in 2013 with limited development efforts needed.	1	Degraded Habitat-Floodplain Connectivity and Function, Degraded Habitat-Channel Structure and Complexity, Biological Processes	Strategy	riparian, upland, wetland	improve spawning and rearing		Chinook, Bull Trout	Coho, pink, cutthroat	Shovel Ready	\$0	Construction	\$86,053	Planting, report	5,000	12/31/2014	South Puget	392150		SRFB - Salmon Recovery	
Restoration Projects		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.	3	Degraded Habitat	unknown	Upland, Riparian, Instream			Chinook	Coho (Second)	Conceptual						12/31/2011	Friends of the	750000		SRFB - Salmon Recovery	

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Capital Projects																							
Restoration		Deer Creek Channel Restoration	The Deer Creek Restoration will restore 750 feet of this now ditch and culvert orientated creek to a natural, meandering stream channel. Currently, the creek frequently overflows its constraints, flooding adjacent areas due to inundation from stormwater runoff and lack of capacity during storm events.	3		unknown	Instream	Activity Type	restore	Coho	Coho (Seco	Conceptual						12/31/2013	City of Puyallup				
Restoration		Meeker Creek Riparian and Stream Restoration	As a result of decades of land development, Meeker Creek has been channelized into a manmade trapezoidal ditch that runs in an east-west alignment from near Fairview Drive and Ave SW in Puyallup, to its confluence with Clarks Creek near 18 St SW. Large stretches of the creek are located on private property and are fully exposed with no riparian cover or shade. This exposure of the creek contributes to depressed levels of dissolved oxygen (DO) in Meeker Creek and, subsequently, Clarks Creek for which a DO Total Maximum Daily Load (TMDL) has recently been developed.	3	Unknown	unknown	Riparian, Instream	Activity Type - Instream Habitat: Channel reconfiguration and connectivity (1000 Feet), Activity Type - Riparian Habitat: Planting (2.30 Acres)		Chum, Chinook	Coho (Secondary Species), Pink (Secondary Species), Steelhead (Secondary Species)	Land Acquisition Completed	n/a					6/30/2014	City of Puyallup			Washington Department	
Restoration Projects		Middle Boise Creek Modeling and Restoration	The King County Department of Natural Resources and Parks is proposing to develop a habitat restoration and flood reduction plan and associated design concept alternatives for Boise Creek between 284th Avenue SE and its confluence with the White River near Enumclaw, Washington (AKA Middle Boise). The goal of this effort is to develop design alternatives to a proof-of-concept level.	2	Eentrenched channel, steep banks, lack of riparian vegetation and instream wood.	2012, King County completed the Middle Boise Creek Feasibility Analysis	channel is entrenched, streambanks steepened, and there's very little riparian vegetation and instream wood	riparian revegetation and channel enhancement	Identify at least 10 future habitat restoration projects immediately adjacent to Boise Creek	Chinook, steelhead,	chum, pink, and coho salmon.	Conceptual						3/31/2013	King County	\$95,017	\$64,000	SRFB - Salmon Recovery	
Restoration		Sheras Falls Barrier Removal	A fish barrier consisting of a drop of approximately 3 feet occurs near a private bridge about 650 feet upstream from the mouth of Clover Creek (outlet to Stellacoom Lake). The creek is asphalt and lined in the immediate vicinity of the bridge. The drop appears to occur at the downstream end of the asphalt treatment. The elevation difference will be corrected by installation of a fish way design, step pool design or a roughened channel design. The project is still in the scoping phase and the final solution has not been chosen. The roughened channel approach is most likely to be implemented.	2	Fish barrier	Strategy, chapter 5; Chapter 7 Table 4	Riparian	Fish passage	Remove fish barrier	coho	chum	design	design/permitting	15,000 of match	Construction/permitting	130000/5,000 match	None	9/30/2012	Pierce Co Water Programs Div	\$130,000	\$20,000	SRFB - Salmon Recovery Funding Board, Pierce Co Water Programs Div	
Restoration		White River Knotweed Eradication Project	Knotweed is a highly destructive and exceedingly robust non-native invasive perennial that is spreading aggressively throughout the White River basin. The plant has no natural enemies and currently thrives along the riverbanks and adjacent roadsides of the basin. In addition to its rapid growth and ability to take advantage of floods to spread even further, knotweed has an extensive underground root network that makes it exceedingly difficult to kill. The Pierce Conservation District is forming a partnership to collaborate across jurisdictions to remove knotweed.	2														12/31/2013		\$87,262		SRFB - Salmon Recovery Funding Board	
Restoration		Improvements at the Buckley Fish Trap	Explore opportunities to improve fish passage at Buckley.	1	Unknown		Instream			Chinook	(Secondary Species), Coho (Secondary	Conceptual						12/31/2011	Washington Department of Fish and Wildlife	\$105,000		SRFB - Salmon Recovery Funding Board	

Pierce County Lead Entity (WRIA 10/12) 2011 3-year Work Program																							
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 1=ready for application 2=not ready; 3=not good fit to Strategy	Limiting Factors	Reference for limiting factor (Recovery Plan, Chapter 3 - Habitat)	Type (HWS items - i.e. riparian, estuary, river delta, nearshore, etc.)	Type (HWS items - i.e. fish passage, instream flow, sediment)	Project Performance (restore 30 acres of floodplain)	Primary Species Benefiting	Secondary Species Benefiting	Status (Conceptual, Feasibility completed, land acquisition completed, design completed)	2012 Activity to be funded	2012 Estimated Cost	2013 Activity to be funded	2013 Estimated Cost	2014 Activity to be funded	2014 Estimated	Likely End Date	Likely Sponsor	Total Cost of Project	Local share or other funding	Source of funds (PSAR, SRFB, other)
Capital Projects																							
	Restoration	Puyallup River Setback Levee at Fennel Creek - Design	Pierce County is proposing to construct a setback levee or revetment along McCutcheon Rd on the middle Puyallup River at the mouth of Fennel Creek (RM 15.2 to 15.8), in order to reconnect 54 acres of floodplain to the river, and revegetate the floodplain. Pierce County currently owns 44 acres of the site. Under a separate grant, Pierce County is acquiring up to 19 additional acres.		Degraded Habitat-Floodplain Connectivity and Function, Degraded Habitat-Riparian Areas and LWD Recruitment, Degraded Habitat-Water Quality	unknown	Upland, Riparian, Rivers/Streams/Shoreline	Activity Type - Estuarine & Nearshore: Berm or Dike Removal or Modification (54 Acres), Activity Type - Instream Habitat: Channel		Chum, Chinook, Cutthroat (S)	Conceptual							12/31/2011	Pierce Co Water Programs Div	500000		Puget Sound Acquisition and Restoration, PRISM Match	
	Restoration Projects	White River Knotweed Control Project Phase 1	The Pierce Conservation District is forming a partnership to collaborate across jurisdictions to remove knotweed. Immediate priorities include completing survey work in the basin, and eradicating knotweed found there. The project's plan is to: Complete surveys in White River and tributaries Begin eradication of Japanese Knotweed found in the basin, beginning at the furthest upstream occurrence	Unrated															12/31/2014	Pierce Co Cor	530000		
		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 waters 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 geographically to adjacent shores/waterways. Initiate on-	\$20,000	Bay Patrol coverage of South Sound. Expand education to South Sound	\$10,000	Ongoing once at target geographic area	Citizens for a Healthy Bay	\$60,000	\$40,000	\$20,000	
		Communciations/ 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			
		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		
		PCRS-SYTI Program	Train and educate youth 15-21 on habitat restoration procedures, use of scientific equip., conducting outreach activities, train and conduct monitoring activities associated with stream/wetland/nearshore restoration	New								SYTI/Outreach coordinator to help run and coordinate this existing program	\$20,000	Expand program and to fund coordinator	\$20,000	Expand program tand to fund coordinator	\$20,000	Ongoing	PCRS	\$60,000	\$60,000	\$20,000.00	
		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 courses.	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	
Hatchery	Stock Monitoring Support	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			
Hatchery	Monitoring Support	Smolt trapping - White River	Operate smolt trap on the White River - \$150,000 per year - includes man on site (Initiate long-	Unrated						Chinook	coho, chum, pink, cutthroat	Install smolt trap	\$150,000	Ongoing	\$150,000	Ongoing	\$150,000	Ongoing	Tribes (PTI, MIT)	\$450,000			
Hatchery	Stock Monitoring Support	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			
Hatchery	Stock Monitoring Support	Smolt trapping - Chambers Creek	Operate smolt trap on Chambers Creek - \$150,000 per year - includes manning site; monitoring also includes counting and identifying returning adult salmon	Unrated						Steelhead	Coho, chum, pink, cutthroat	Install smolt trap	\$150,000	Ongoing	\$150,000	Ongoing	\$150,000	Ongoing	WDFW, CCWC	\$450,000			
Hatchery	Stock Monitoring Support	Mud Mountain Dam mortality study	Assess the survival of adult and juvenile fish through Mud Mountain dam	Unrated															Corps of Engineers	\$250,000			

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Capital Projects																							
Hatchery	Stock Monitoring Support	Fish tagging for Chinook Tracking	Fish tagging to track Chinook - trapping and tagging salmonid smolts for monitoring distribution and habitat usage and timing (POST tag) adaptive management [Increase telemetry and hydro-acoustic tagging of chinook and steelhead in system]	Unrated															Tribes	\$90,000			
Newly added projects (YELLOW)																							
Active projects (funded) (GREEN)																							
Completed projects (BLUE)																							
New information/updates to existing projects (ORANGE)																							