

## WRIA 8 Three-Year Work Plan Update

### Introduction and Context

**1. Provide a brief overview of the characteristics of your Chinook Salmon Recovery area. Refer to the checklists and other content developed for the 2012 Salmon Recovery Council conference and work with your PSP liaison to summarize this information. These are posted at the PSP [website](#) or available from PSP staff.**

Since the listing of Puget Sound Chinook salmon as threatened under the Endangered Species Act in 2000, members of the Lake Washington/ Cedar/ Sammamish Watershed (WRIA 8) Salmon Recovery Council have worked to ensure that salmon continue to return to our watershed each fall. This locally driven process involves 27 local governments, citizens, community groups, state and federal agencies, and businesses working towards the shared goal of making WRIA 8 – the most populated watershed in Washington – a place where salmon and people can live together.

The watershed contains two major river systems, three large lakes, and numerous creeks. The primary connection to Puget Sound is through the Hiram M. Chittenden (Ballard) Locks, and the watershed's saltwater shoreline extends from Seattle to Everett. Salmon recovery focuses on the needs of the Cedar River and Sammamish River Chinook populations, as well as the migratory and rearing corridors required by these populations. The WRIA 8 Chinook Salmon Conservation Plan contains more than 1,200 capital and programmatic actions, which were identified through scientific studies and an extensive collaborative process. Aside from site-specific recovery actions, the plan contains watershed-wide priorities such as protecting forests, reducing impervious surfaces, managing storm water flows, protecting and improving water quality, conserving water, and protecting and restoring riparian areas. What we do to recover salmon in this watershed is an important component of restoring Puget Sound.

**2. Describe the process for developing your 3YWP narrative and project/activity list. Who are the stakeholders involved and what are their roles? Are harvest and hatchery managers involved in your planning group or have they had an opportunity to comment or consult on your 3YWP?**

Updating the Three-Year Work Plan in WRIA 8 involves the participation of the WRIA 8 Technical Committee, Implementation Committee, and Salmon Recovery Council. Both committees see regular participation from a subset of local jurisdictions, non-profit organizations, and state agency partners. Elected officials from the majority of local jurisdictions in the watershed have a seat on the Salmon Recovery Council, as do stakeholders representing state agencies, non-profit organizations, and citizen interests. Recovery actions are considered for addition to the Three-Year Work Plan activity list as projects and programs elevate in priority and as sponsors consider applying for grant funding to support implementation. In 2013, WRIA 8 staff also conducted a more systematic effort than in past

years to reach out to project sponsors to ensure actions on the activity list reflect the current status and most up-to-date project descriptions.

Upon compiling proposed updates to the Three-Year Work Plan activity list, WRIA staff reviewed the proposed changes with the Technical Committee, who in turn provided their recommendations for whether the proposed updates should be approved based on technical merit. The Technical Committee's recommendations were presented to the Implementation Committee prior to being delivered to the WRIA 8 Salmon Recovery Council. Following presentation of the proposed updates to the Salmon Recovery Council and their subsequent discussion, the Council approved the Technical Committee's recommendations without modification.

Co-managers for harvest and hatchery management have not actively participated in WRIA 8 planning activities since 2009. Harvest and hatchery managers were involved in the local H-Integration process which further refined VSP goals (tables 1 and 2). In addition, the Muckleshoot Indian Tribe reviews projects and provides comments during permit reviews. The WRIA 8 H-Integration sub-committee and Technical Committee vetted recommendations for complementary actions in 2009 (Attachment A). We provided this year's narrative to the Co-managers for their comment. WDFW fish program and hatchery program managers did not respond to our request for comments. We would welcome their future input and participation.

## **Background, Planning, and Logic of the Recovery Chapter**

### **1. What are the recovery goals for your watershed for Chinook salmon? Include information on both population goals (VSP parameters) and habitat goals.**

Recovery goals from 2005 and the hypotheses upon which they are based are discussed in detail in Volume 1, Chapter 4 of the [WRIA 8 Chinook Conservation Plan](#). The watershed monitors quantitative goals for some VSP parameters. During the H-Integration process in 2007-2009 we refined our VSP recovery goals (see Tables 1 and 2) to make them more specific, measurable, realistic and time-based. Other goals include protecting or restoring important watershed processes, protecting or restoring habitats, setting back levees, and protecting and improving forest cover and water quality. Some goals are tied to priority reaches and some have a broader geographic scope.

### **2. What is the current strategy to accomplish the recovery goals and what assumption(s) is this strategy based on?**

WRIA 8's recovery strategy combines restoration and protection actions with outreach, education, and existing policies and programs to protect watershed processes, forest cover, water quality, and riparian areas. The WRIA 8 strategy emphasizes large-scale habitat restoration and protection activities that reconnect flood plain habitats and rearing and flood refugia for juvenile Chinook in the Cedar River (our highest priority geography and population).

This strategy is based on the assumption that of the two Chinook populations in WRIA 8, the Cedar River population is at greatest risk of extinction. The Sammamish population is currently augmented by an annual release of 2 million juvenile Chinook salmon from the Issaquah Hatchery.

The WRIA 8 Technical Committee hypothesizes that the juvenile rearing/late-season (parr) life history stage is the key limiting stage for Chinook salmon in this watershed, and that juvenile Chinook rearing and flood refuge habitat on the Cedar River needs improvement to restore Chinook salmon in WRIA 8. Our most basic assumption is that performing the more than 170 actions on the 10-year “Start List” will be sufficient to set the two WRIA 8 Chinook salmon populations on an improving trajectory. The strategy also is based upon the assumption that funding will be sufficient to implement all the actions on the Start List within a 10 year timeframe, which has not been the case. Consequently, implementation is behind schedule.

In 2012, the Technical Committee and Implementation Committee refined the criteria we use to evaluate projects for grant funding. These criteria are intended to help communicate our priorities to project proponents and the public, and to more clearly document how funding decisions align with WRIA 8 Plan goals. At the same time, we recognize that in order to maintain and protect overall watershed health and species diversity, actions elsewhere throughout the watershed are necessary. Therefore while we prioritize large-scale habitat restoration and protection actions in the Cedar River basin, we also fund projects elsewhere within the greater Lake Washington/ Cedar/ Sammamish watershed. The strategy prioritizes process-based actions, yet acknowledges that a pragmatic and opportunistic approach is sometimes necessary in the short run for long-term success. We are currently nearing fruition on a number of acquisition projects on the Cedar River, for example, in which properties were bought opportunistically in key areas over many years with the long-term goal of setting back levees to restore floodplain habitat.

### **3. What new knowledge or information has changed your strategy, assumptions or hypotheses since your recovery chapter was written?**

Our implementation progress assessments in [2008](#) and [2011](#) generally support our original strategies, assumptions and hypotheses, yet underscore that funding for implementation is not keeping pace with our needs. However, analyses performed since adoption of the 2005 plan have identified a few areas for course correction:

- In 2006, [research](#) into the genetics of the North Lake Washington Chinook population led us to change our documented population structure from three populations (Cedar, North Lake Washington and Issaquah) to two (Cedar and Sammamish). (WRIA 8 Technical Memo 2006-01)
- In 2009, a gap analysis identified outreach to lakeside property owners as an important focus area, since the south Lake Washington shoreline is important to migrating juvenile Chinook salmon from the Cedar River. WRIA 8 is a charter member and a key supporter

of the “[Green Shorelines](#)” initiative. WRIA 8 continues to seek funding to further this work.

- In 2010, the WRIA 8 Technical Committee commissioned King County to conduct a [land cover change analysis](#) to answer two broad questions: 1) Is forest cover being retained in priority WRIA 8 subbasins? and 2) Are riparian buffers being protected along priority streams inside WRIA 8? We learned that aggregate forest cover outside the Urban Growth Area boundary was essentially unchanged from 1991-2006, though a finer-scale analysis found some loss of forest cover in riparian areas between 2006 and 2009. As was to be expected, forest cover declined inside the Urban Growth Area boundary during that period. Some decline was detected in forest cover in streamside areas both inside and outside the UGA boundary. Follow-up investigations indicated that vested development allowed under earlier critical areas rules was the dominant cause. A subsequent GIS analysis found no further vested projects in WRIA 8, so this issue is not likely to be a future problem. As a result of the analysis, WRIA 8 renewed emphasis on outreach to streamside property owners to encourage stewardship and restoration of streamside areas. WRIA 8 continues to seek funding to further this work.

#### **4. How is the sequencing and timing of actions or projects done in such a way as to implement the strategy as effectively as possible?**

WRIA 8 takes a pragmatic approach to the sequencing and timing of actions and projects, recognizing that a broad range of simultaneous actions is necessary to recover Chinook salmon in the watershed. At the same time, we actively encourage projects and programs in high-priority areas identified in the Plan. Projects seeking funding are vetted by a Project Subcommittee composed of technical and policy experts for alignment with Plan objectives. Projects with significant risks, questionable timing or high uncertainty are directed to document their feasibility before seeking funds for design or construction.

## **Plan and Gaps**

### **1. What are the obstacles or barriers for implementing monitoring and adaptive management? Where could you use support for development of your M&AM plans?**

Funding is the most significant obstacle to monitoring in WRIA 8. Despite the substantial investment that WRIA 8 makes in monitoring the status and trends of Chinook salmon, and significant local support for habitat status and trends monitoring that was leveraged into a 5-year EPA-funded program, the long-term outlook for even this most basic monitoring is grim. WRIA 8 is one of the more fortunate watersheds in Puget Sound in terms of monitoring resources, but the current program is not sustainable as costs continue to rise and funding sources decline. The WRIA 8 Technical Committee will likely have to reduce the scope of its monitoring program in the near future unless additional resources are identified.

**2. Considering all actions affecting salmon recovery in the watershed, is the Chinook salmon resource likely to be closer to, or further from, the recovery goals ten years from now as it is today?**

Although insufficient funding continues to be a drag on progress, if salmon recovery entities continue to support and implement the WRIA 8 Plan, and if conditions outside the control of habitat managers do not decline, Chinook salmon in WRIA 8 will likely be closer to recovery ten years from now. A number of large-scale restoration projects on the Cedar River are approaching implementation. The Issaquah dam removal project will substantially increase the amount of stream habitat available for Sammamish River Chinook salmon to spawn. Floodplain management regulations in King County (updated in 2010) meet or exceed [performance standards](#) set by NOAA and FEMA for protecting salmon. Projects already implemented such as the Landsburg Fish Passage facility, Cedar Rapids Floodplain Restoration, and other conservation efforts are already suggesting progress.

Nevertheless, a number of threats to recovery of both WRIA 8 Chinook populations remain. The Sammamish Chinook population relies upon streams inside the UGA boundary to support its spatial diversity component: continued development in those subbasins is likely to make those streams less supportive of salmonids, and future analyses may result in downgrading those streams from Tier 2 to Tier 3. Conflicting management objectives in WRIA 8 rivers (flood control, recreation, water supply, new roads/infrastructure, etc.) will continue to complicate salmon recovery efforts. Forest cover protection at the watershed scale held steady between 1991 and 2006, though future development pressures may pose a challenge to forest cover retention. Development inside the UGA boundary will continue, making improved stewardship at finer geographic scales (e.g., riparian areas) critically necessary. There is an expectation that new stormwater and water quality standards will hold the line on any further decline in water quality, though additional work needs to be done before water quality improvements will be seen. Enforcement of current or future regulations will continue to be challenged by cutbacks to regulatory staffing or government services. Operations and funding for infrastructure improvements, including fish passage, at the nearly 100 year-old Hiram Chittenden Locks remain uncertain, and therefore remain a potential threat to Chinook survival in the watershed.

Some of the greatest uncertainties exist outside the control of habitat managers. One of the largest surrounds the question of marine survival: new [research](#) in the Columbia River basin suggests that threats to survival in the North Pacific Ocean have a much greater impact on population dynamics than previously thought. Additionally, juvenile survival in the Salish Sea is being [implicated](#) as a potential recovery bottleneck for Puget Sound Chinook. The effects of climate change on ocean conditions, as well as on water temperature in the Lake Washington Ship Canal and Sammamish River, are also problematic for long-term Chinook survival.

**Table 1: Cedar River Chinook Population Goals and Outcomes from H-Integration process** (goals in **bold** print are reiterated from WRIA 8 Chinook Conservation Plan)

VSP Parameter	Historic/Template Conditions	Current (Base) Period Conditions	10-year GOALS	Long-term GOALS	Outcomes
<b>Abundance</b>	>15,000 spawner capacity (NOAA 2004); 13,733 (EDT template estimate)	Cedar River – recent average of 481 fish (AUC <sup>1</sup> estimates, 1988-2006)	<ul style="list-style-type: none"> <li>• <b>Meet co-manager escapement goal of 1,200<sup>2</sup> naturally spawning adults on Cedar</b> (AUC live count index which corresponds to estimated 1,680 total adults).</li> <li>• Tribal and sport harvest depends upon abundance above this goal.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Meet WDFW target of 2,000<sup>3</sup>-8,200 spawners</b> (lower range is MSY<sup>4</sup>, upper range is equilibrium abundance.)</li> </ul>	Tribal treaty and sport harvest opportunity occurs on a consistent basis. Available habitat is fully utilized.
<b>Productivity</b>	EDT template productivity (at origin) modeled at 26.5 r/s. Otherwise assume >3.1 as high productivity consistent with recovery planning.	EDT estimate or estimate from NOAA BRT <sup>5</sup> is $\approx 1$ . Co-manager estimate = 2.6 returns/ spawner (2004-07). Annual avg. egg-migrant survival rate (1998-2006) = 9.2% (WDFW wild salmonid eval. program)	<ul style="list-style-type: none"> <li>• Maintain or increase growth rate of 2.6 r/s (based on run reconstruction estimates i.e., total production)</li> <li>• 1.5x<sup>6</sup> (1998-2006) avg. egg to migrant survival rate (i.e., 13.8%)</li> <li>• Short-term target: 3.1 recruits/spawner (run reconstruction estimation method)</li> <li>• <b><math>\geq 2</math> adult returns/spawner 2-4 years out of 10</b> (redd-redd productivity estimation method)</li> </ul>	<ul style="list-style-type: none"> <li>• Long term egg to migrant survival rate of 12%-20%</li> <li>• <b>1-3.1 recruits/ spawner<sup>7</sup></b></li> <li>• Maintain adult return/ spawner rate <math>\geq</math> 10-yr rate</li> </ul>	Spawners are producing optimal numbers of juvenile migrants. The number and proportion of NOR spawners has increased. There is a greater frequency of harvestable abundance.
<b>Spatial Distribution</b>	Proportional use by river mile and tributaries, lake residency.	Spawning and juvenile use was restricted to lower 21.9 miles prior to 2003 Landsburg Dam ladder construction	<ul style="list-style-type: none"> <li>• <b>Convert 1 satellite subarea to core (i.e. Upper Cedar) (complete)</b></li> <li>• Maintain or <b>expand spawning area (redd) distribution</b></li> <li>• Expand rearing habitat for fry in the river and flood plain</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain or increase spatial distribution of spawning and rearing areas.</li> <li>• <b>Recapture historic distribution</b> (i.e, proportional use) with no loss of current distribution.</li> </ul>	Population is more resilient to disturbances and is more fully exploiting available habitat
<b>Diversity</b>	Assume $\geq$ 50% smolt rearing life history and low stray rate from Green or other systems.	Proportion of fry and smolt migrants is skewed to fry migrants. Adult pHOS <sup>8</sup> has ranged from 10-34% (years 2004-08).	<ul style="list-style-type: none"> <li>• <b>Increase Cedar instream rearing trajectory</b> from 30% to 40% smolt composition, using a 5-year average. Increase number of smolt migrants while increasing total annual migrants</li> <li>• Decrease spawning composition on Cedar to pHOS <math>\leq</math> 20% while maintaining overall abundance.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Increase Cedar instream rearing trajectory to 50%</b> smolt composition without reducing total annual migrants. Consider further reduction in pHOS to &lt;10%. (Proportions will continue to be assessed over time through the Adaptive Management process.)</li> </ul>	Life history diversity reflects expanded habitat opportunities. NORs are increasingly driving population genetics so that genetic risk is minimized

<sup>1</sup> AUC = Area under the curve estimation method.

<sup>2</sup> Plan erroneously stated co-manager goal as 1250.

<sup>3</sup> Plan erroneously stated co-manager lower goal as 1,000.

<sup>4</sup> MSY = Maximum sustainable yield.

<sup>5</sup> BRT = Biological Review Team.

<sup>6</sup> Plan has goal of 2x current survival rate.

<sup>7</sup> Based on run reconstruction estimation method.

<sup>8</sup> pHOS = proportion of hatchery-origin spawners.

**Table 2: Sammamish River Chinook Population Goals and Outcomes from H-Integration process (goals in bold print are reiterated from WRIA 8 Chinook Conservation Plan)**

VSP Parameter	Historic/Template Conditions	Current (Base) Period Conditions	10-year GOALS	Long-term GOALS	Outcomes
<b>Abundance</b>	Historic abundance unknown given limited documentation. EDT template estimate (2004) = approximately 8,500	Recent average spawning ground escapement = 255 (Bear/Cottage AUC index); 1,083 ( <i>expanded Bear/Cottage AUC estimate plus Issaquah Cr below the hatchery rack</i> ) 1998-2007.	<ul style="list-style-type: none"> <li>Maintain base period average basin escapement (1,083) on spawning grounds (in Issaquah Cr and other tributaries incl. Bear/Cottage)<sup>1</sup> and maintain broodstock goal of 2,000 at Issaquah Hatchery. (<i>Numbers are being examined by the co-managers, and will be revisited after Issaquah intake barrier removal</i>).</li> </ul>	<ul style="list-style-type: none"> <li><b>1,000 to 4,000 spawners (WDFW) in tributaries</b> (<i>lower range is MSY<sup>2</sup>, upper range is equilibrium abundance</i>). (<i>Numbers are being re-examined by the co-managers, and will be revisited after Issaquah intake barrier removal</i>).</li> <li>2,000 adult returns to the Issaquah Hatchery.</li> </ul>	Tribal treaty and sport fishing opportunity occur on a consistent basis. Available tributary habitat is fully utilized.
<b>Productivity</b> <sup>3</sup>	EDT template productivity (2004) modeled to be 19.4. Assume > 3.0 as high productivity consistent with recovery planning.	Estimates from EDT model and NOAA BRT = ~ 1 or less. Co-manager estimate = 0.53 returns/spawner (2004-07). Avg. egg-migrant survival rate (2000-2006) = 2.9% in Bear Cr. (WDFW wild salmonid eval. program)	<ul style="list-style-type: none"> <li>Increase productivity to 1.0 or greater.</li> <li>1.5x (2004-2007) egg to migrant survival rate in subareas (i.e., 4.4%).</li> <li><b>≥2 adult returns/spawner 2-4 years out of 10</b></li> </ul>	<ul style="list-style-type: none"> <li>Long term egg to migrant survival rate of 10%.</li> <li><b>1-3.0 recruits/ spawner in Sammamish.</b></li> <li>Increase NOR growth rate to greater than 1.05.</li> </ul>	Spawners in tributaries are producing optimal numbers of juvenile migrants.  The number and proportion of NOR spawners has increased.
<b>Spatial Distribution</b>	Spawning distribution assumed to be broad but more concentrated in larger streams.	Most consistent spawning limited to Issaquah and Bear/Cottage creeks. Spawning distribution in Issaquah Creek impeded by barrier at ~RM 5.	<ul style="list-style-type: none"> <li><b>Convert 1 satellite subarea to core</b> (e.g., Issaquah Creek upstream of barrier at RM 5)</li> <li><b>Expand spawning distribution</b> by 50% over 2000-2005 average.</li> </ul>	<ul style="list-style-type: none"> <li><b>Recapture hypothesized historic distribution.</b></li> <li><b>Consistent use of NLW tribs in addition to Bear Cr for spawning.</b></li> </ul>	Population that is more resilient to disturbances and is more fully exploiting available habitat.
<b>Diversity</b>	Historic diversity assumed to be greater than it is currently	Assumed that genetics are driven mostly by hatchery fish.	<ul style="list-style-type: none"> <li><b>Improve Sammamish River habitat conditions to support eventual smolt rearing.</b></li> <li>Maintain or increase the proportion of natural origin fish (NORs) in the hatchery broodstock and in the natural population</li> <li>Operate Issaquah hatchery to move toward meeting HSRG goals for an integrated population, while maintaining total abundance.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain and increase duration of natural spawning period in basin.</li> <li>Operate Issaquah hatchery consistent with HSRG recommendations for integrated hatchery (see HSRG Tech Discussion Paper #1.) and WDFW hatchery reform plan now under development.</li> </ul>	NOR spawners drive the genetics of the population so that genetic risk is minimized.

<sup>1</sup> Abundance trends in Bear-Cottage Creek and other tributaries will continue to be monitored and compared to the current baseline abundance in order to measure progress in meeting all VSP goals.

<sup>2</sup> MSY = Maximum sustainable yield.

<sup>3</sup> Based on run reconstruction method-natural-origin spawners on the spawning grounds.

## ATTACHMENT A

### WRIA 8 H-Integration subcommittee recommendations for **Step 4** – complementary actions to achieve the objectives described in Step 3.<sup>1</sup>

The H-Integration subcommittee acknowledges that the ultimate goal of the H-Integration process is to recover healthy, self-sustaining, harvestable salmon runs. The following recommendations describe in general terms our complementary actions to achieve recovery of the Cedar and Sammamish Chinook salmon populations in WRIA 8. Specific actions are contained in the (habitat) recovery and harvest management plans approved by NOAA; hatchery actions will be detailed in a forthcoming Issaquah hatchery work plan.

#### **Habitat:**

1. Continue to implement the prioritized habitat protection and restoration recommendations in the WRIA 8 Chinook Conservation Plan, which were developed to improve VSP parameters of natural origin Chinook in the Cedar and Sammamish watersheds. The subcommittee acknowledges that it is uncertain whether the timing and intensity of actions outlined in the WRIA 8 Chinook Conservation Plan are sufficient for recovery, partly due to funding constraints. WRIA 8 and the co-managers will continue to monitor plan implementation and population trends, and will suggest appropriate actions if near-term targets are not reached. Beginning in 2010, WRIA 8 will work with the Recovery Implementation Technical Team to implement a robust adaptive management program to address these uncertainties.
2. Continue to add high-benefit habitat projects to the project list as funding and sponsorship allows. Follow Technical Committee recommendations from WRIA 8 Technical Memorandum 2007-01 when adding projects, while responding to new information as appropriate.
3. Programmatic and land-use factors were identified in the WRIA 8 Plan as central to the success or failure of Chinook recovery. The WRIA 8 Implementation Committee should continue to assist in programmatic implementation leadership and effectiveness analysis.

#### **Harvest:**

1. Predicate any directed terminal fisheries for Lake Washington Chinook on in-season abundance estimates that project that the Cedar escapement will exceed the goal of 1,680<sup>2</sup> spawners on the Cedar River. Total Lake Washington Chinook abundance associated with 1,680 spawners on the Cedar River is high enough to project spawning ground abundance in the Sammamish sub-basin at or above the recent average of 1,083 for the combined Bear and Issaquah Creeks (AUC live count

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<sup>1</sup> The actions described in this document are the consensus of the WRIA 8 H-Integration sub-committee. There were differing opinions among the sub-committee on the necessity of additional actions to decrease the proportion of hatchery-origin spawners (pHOS) on the spawning grounds. These perspectives will be summarized elsewhere.

<sup>2</sup> Escapement numbers for Cedar and Sammamish populations are set by the co-managers. Numbers are presently under review.

index).<sup>3</sup> Spawning ground escapement consists of all fish spawning naturally including marked and unmarked fish.

2. Increase mark-selective and area-selective harvest where appropriate and feasible (to be determined by co-managers), including but not limited to harvest of hatchery surplus in Lake Sammamish.

**Hatchery:**

1. Implement the HSRG recommendations, as updated by the current WDFW hatchery reform initiative, for the Issaquah hatchery as an integrated hatchery. Complete and implement an Issaquah hatchery work plan.
2. Continue to monitor the proportion of marked and unmarked fish on the spawning grounds.
3. Continue to increase the incorporation of natural origin broodstock into the hatchery stock as they become available and work to decrease the proportion of hatchery-origin spawners (pHOS) on the spawning grounds while maintaining overall abundance.<sup>4</sup> Decrease pHOS by taking the following actions:
  - a. Implement improved fish passage at the Issaquah Hatchery water supply intake dam to make more habitat available in Issaquah Creek for naturally spawning Chinook.
  - b. Habitat managers will continue to implement habitat protection and restoration projects, with net gains in habitat capacity and productivity intended to increase the proportion of natural-origin Chinook spawners (thereby decreasing pHOS).

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<sup>3</sup> This projection is based on the observed relationship between Cedar River escapement and total basin returns. The Cedar River escapement is typically a small fraction of all Chinook entering the Locks (average 9.12%, range 3% to 12%, years 2000-07). A high escapement to the Cedar River is typically associated with a high total Lake Washington return, with a vast majority returning to the Sammamish subbasin.

<sup>4</sup> See footnote 1.

# WRIA 8 Three-Year Work Plan Priority Actions List - 2013

	B	C	D	E	F	G	H	I	V	W	X	AA
	Plan Category	Year Added	Status: A=Active; C=Complete; I=Inactive	Project Name	Project Description	Population (C=Cedar, S=Sammamish, M=Migratory-both populations); P=Programmatic; A=Assessment	Priority Tier	Primary Limiting Factors Addressed	Likely end date	Likely sponsor	Total Cost of Project	Project ID
1	Acquisition for Restoration	2012	A	River Bend Floodplain Acquisition (formerly River Bend Mobile Home Buyout)	Purchase property underlying 19 mobile homes nearest river, recontour existing revetment to reduce erosion, flood damage and improve flood conveyance and habitat. Alternatively, purchase all property and remove all mobile homes and the revetment and the downstream levee to create a continuously unarmored left bank from RM 6.5 (outlet of Cavanaugh Pond) to RM 9.5 (Cedar Mtn. Bridge). (C219)	C	Tier 1	Floodplain Connectivity & Function		King County		C219
2	Restoration	2012	A	Cedar River Floodplain Restoration at river mile 16	Restore floodplain habitat on left bank of the Cedar River at river mile 16. Native vegetation and large wood installation will create needed rearing habitat for juvenile salmon. Minor riparian re-grading may occur if necessary to engage floodplain benches. Property is surrounded by King County property. (C255)	C	Tier 1	Floodplain Connectivity & Function		Mid-Sound Fisheries Enhancement Group		C255
3	Restoration	2012	A	Cedar River riparian restoration and invasive species control	Protect priority riparian habitat from knotweed and other priority invasive species in the Cedar River consistent with land use actions C5 and C7. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to projects C203, C205, C206, C212, C217, C221, C248, C251, and C253 in the Cedar River consistent with the restoration technical hypotheses for the Cedar River in Plan Volume II (Other non-numbered projects also eligible).	C	Tier 1	Riparian areas; invasive species				C005A
4	Acquisition and Restoration	2010	A	Cedar Reach 3	Protect and improve riparian habitat in future redevelopment	C	Tier 1	Floodplain Connectivity & Function	2014	SPU, CLC, Renton		C206
5	Acquisition	2006	A	Jones Reach Acquisition and Habitat Protection - C228b	Jones Reach: 20.8 acres, 13 parcels ( of total 29 acres, 16 parcels) targeted for protection. Left bank of river already protected. Acquiring parcels on right bank of the river would allow both banks of the river to be protected. (C228)	C	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment	2013	King County (City of Seattle)	\$ 3,800,000	C228B
6	Acquisition	2006	A	Mouth of Taylor Creek Reach Acquisition	Mouth of Taylor Creek Reach: Acquire approximately 40 acres of forested riparian floodplain associated with both the Cedar mainstem and the lower reach of Taylor Creek. The target parcels include approximately 1,000 feet of mainstem channel, nearly 1,300 feet of the lowermost reach and mouth of Taylor Creek, and one of the largest remaining floodplain wetlands adjacent to the mainstem. Some of the acquisitions will facilitate future levee removal and/or modification projects (Getchman and Rhode Levees). Completes acquisition by 2009, with restoration by 2012. (C245)	C	Tier 1	Floodplain Connectivity & Function	2010	King County	\$ 3,500,000	C245
7	Acquisition	2006	A	Belmondo Reach Acquisition	Belmondo Reach: 71 acres, 10 parcels, rural residential, riverfront. No levees in reach, numerous side channels, braided reach. Located between WPA and Cummings levees. Reach includes Trib 0316 confluence area. Area is just downstream of Cedar Grove Road / Rainbow Bend acquisition and meander bend restoration. (C232)	C	Tier 1	Floodplain Connectivity & Function	2010	King County	\$ 3,100,000	C232
8	Acquisition	2009	A	Elliot Bridge Habitat Acquisitions	Acquisition of high habitat value properties (7 parcels, 6.7 acres) in the Elliot Bridge reach. These acquisitions will supplement flood buy-outs in the reach and will facilitate early removal and setback of the levee. (C216-B)	C	Tier 1	Floodplain Connectivity & Function	2010	King County	\$1,676,000	C216 B
9	Acquisition	2009	A	Royal Arch Reach Acquisitions	Acquisition of parcels in the Royal Arch Reach (RM 13.19 to 14.19) of the Cedar River mainstem. Potential habitat restoration opportunities include restoration of a historic side channel for high flow refuge for juveniles, and spawning and rearing habitat.	C	Tier 1	Floodplain Connectivity & Function	2011		\$2,000,000	C247
10	Acquisition	2006	A	Dorre Don Meanders Reach Acquisition	Dorre Don Meanders Reach: Protect 71 acres, 14 parcels, rural residential, riverfront with flooding issues. Includes an extensive floodplain riparian forest, numerous valley floor spring-fed features including side channel, stream, and oxbow habitats. (C253)	C	Tier 1	Floodplain Connectivity & Function	2011	King County / City of Seattle	\$ 4,000,000	C253
11	Restoration	2006	A	Cedar River Rainbow Bend Restoration (C235-B)	(Name change from Cedar Grove Road - Rainbow Bend Levee Removal). Conduct further levee modification work to maximize channel-floodplain interactions. (C235)	C	Tier 1	Floodplain Connectivity & Function	2010	King County / Seattle Public	\$ 50,000	C235B
12	Restoration	2006	A	Enhance Flows at Lower Rock Creek	Lower Rock Creek Flows: Enhance Flows for Pre-Spawning Migrants: Work with the City of Kent in establishing instream flows that are protective of Chinook through their HCP process. (C351)	C	Tier 2	Stream flow, Water quality		Kent	\$ -	C351
13	Restoration	2006	A	City of Renton Riparian Restoration	Riparian restoration in City of Renton-owned parkland upstream of I-405 bridge on left bank. Define area and then restore (C209/C210)	C	Tier 1	LWD recruitment, Floodplain connectivity	2010	Renton	\$ 81,000	C209 / C210
14	Acquisition	2006	A	Acquisition and Habitat Protection Upstream of Ron Regis park: Reach 4	Protect Habitat in Reach 4: Protect existing riparian habitat, instream habitat conditions and extensive LWD in reach. Most of reach already in public ownership or protected by regulations (e.g. steep slopes). Targeted parcel is adjacent to landslide reach immediately upstream of Ron Regis park on right bank. (C213)	C	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment	2013	King County	\$ 200,000	C213
15	Acquisition	2006	A	Bucks Curve Buyout and Levee Setback/Removal	Continue buying out structures to build on previous restoration efforts in vicinity of RM 6.2 to RM 6.4. Once sufficient land acquired, remove or setback existing levee, and revegetate floodplain. In best alternative, a portion of SE Jones Road could be relocated northward. (C215)	C	Tier 1	Floodplain Connectivity & Function	2013	King County / City of Seattle /	\$ 2,300,000	C215
16	Acquisition	2007	A	Lower Lions Stream Reach Acquisition	30 acres (12 parcels) includes a large area of riparian forested floodplain between the Cedar River and SE 188th Street. Enhances side channel that was constructed in the area, allows expansion, and completion of side channel. (C239)	C	Tier 1	Floodplain Connectivity & Function	2010	King County	\$1,620,000	C239
17	Acquisition	2006	A	218th Place Side Channel Protection and Enhancement	218th Place Side Channel: Protect 5 acres, 1 parcel, rural residential, riverfront. Once acquired there are opportunities for habitat enhancement in floodplain and off-channel areas. (Related to C242 to enhance 218th side channel once protected. C242 is not on start list.) (C244)	C	Tier 1	Floodplain Connectivity & Function	2012	King County	\$500,000	C244
18	Restoration	2006	I	Study Options to Protect Habitat in Reach 4 and Reduce Flooding and Erosion in Ron Regis park	Study Options to Protect Habitat in Reach 4 and Reduce Flooding and Erosion in Ron Regis Park: It is unclear how much further river is going to erode bank and migrate into Ron Regis park in landslide area. Eventually there will be a conflict with park uses. Explore using LWD and levee setback to prevent excessive erosion and flood damage to public lands associated with Ron Regis Park while protecting natural habitat forming processes in reach. Study should include lower Madsen Creek. (C214)	C	Tier 1	Floodplain Connectivity & Function	2013	Renton / King County	\$ 40,000	C214
19	Restoration	2006	C	LWD over Landsburg Dam	Explore feasibility of passing large woody debris over Landsburg Dam. (C260)	C	Tier 1	Channel structure and complexity	ongoing	City of Seattle		C260
20	Restoration	2012	A	Enhance small creek mouths in Lake Washington shoreline segments 3, 4, 5, 6, and 7	This project supports restoration work on tributary stream mouths in Lake Washington, beyond the highest priority areas in the southern portion of the Lake (segments 1 and 2). For example, in 2012 Adopt A Stream Foundation is interested in implementing a project to restore the mouth of tributary #0056 in Kenmore, which supports implementation of land use priority N63 in lakeshore segment 4.	M	Tier 1	Shoreline complexity				C282 & C303
21	Restoration	2012	A	Madrona Park Bulkhead Removal and Shoreline Restoration	Friends of the Cedar River Watershed, in partnership with Seattle Parks, Friends of Madrona Woods, and GAYNOR, Inc., would expand the current re-vegetated shoreline restorations at Madrona Park to the north. The project would support a priority project for the City of Seattle and maximize resources previously invested in the Madrona Creek day-lighting and shoreline project. This project would be a 400 lineal foot shoreline restoration extension continuing north from the current 400+ Shoreline Restoration done as part of Madrona Park Creek day-lighting and new mouth estuary at Lake Washington. (C287)	M	Tier 1	Shoreline complexity		Seattle Parks; Friends of the Cedar River Watershed		C287
22	Restoration	2012	A	Migratory Areas riparian restoration and invasive species control	Protect priority shoreline habitat from priority invasive species in the Migratory Corridors(Lake Washington, Lake Sammamish, Ship Canal, and marine nearshore) consistent with land use actions C27, N13, M8 and M9. Control priority invasive species on a coordinated basis in priority shoreline habitats. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to projects C264, C266, C272, C273, C275, C277, C280, C281, C297, C298, C302, M208, M211, M213, M215, M218, M219, M224, M226, M228, M232, M237, M238, M247, and M248 in Migratory Areas consistent with the restoration technical hypotheses for Migratory Areas in Plan Volume II (Other non-numbered projects also eligible).	M	Tier 1	Riparian areas; invasive species				M008A
23	Restoration	2011	A	Lake Washington Shoreline Restoration	Lake Washington Shoreline Restoration: Remove bulkheads and place gravels. C288A (Chism Beach Park); C288B (Beaux Arts Shoreline); C288C (Luther Burbank Park - Phase II); C288D (Clyde Beach Park); C288E (Meydenbauer Bay Park); C285 (Newcastle Beach Park)	M	Tier 1	Shoreline complexity		City of Bellevue		C288a; c285
24	Restoration	2011	A	Willow Creek Daylighting	Daylight Willow Creek along much of its length downstream of Edmonds Marsh to create an open channel. Willow Creek would be moved out of the existing pipe from the marsh to the Sound into a daylighted channel. The creek would pass under a new bridge culvert (trestle) that is being placed beneath existing and future BNSF rail lines near Pt. Edwards and enter the Sound near or through Marina Beach Park. (M233)	M	Tier 1			People for Puget Sound		M233
25	Restoration	2006	A	Small Creek Mouth and Shoreline Restoration in Lake Washington shoreline segments 1 and 2	Restore small creek mouths or restore shorelines (remove bulkheads, reduce armoring, reduce number of docks, or restore vegetation). Work with private landowners (including homeowner demonstration project) or on public lands throughout section 1 and 2. (C267, C269 - South Lake Washington Habitat Design and Restoration, C270 - Lower Taylor Creek Restoration, and C271-Mapes Creek daylighting demonstration site).	M	Tier 1	Shoreline complexity	2015	Seattle	\$ 3,500,000	C267, C269 - C271
26	Restoration	2009	A	South Lake Washington DNR Shoreline Restoration	Shoreline restoration of WA Department of Natural Resources property. Remove am portion of flume (along lakeside), create shallow water habitat, protect existing cove, and plant overhanging riparian vegetation.	M	Tier 1	Reduced habitat complexity; Shoreline complexity	2015	Dept. of Natural Resources		C266
27	Restoration	2008	A	Feeder Bluff Restoration Feasibility Study and pilot restoration projects	Nearshore feasibility assessment to develop multiple beach nourishment designs for restoration (M2 & M3)	M	Tier 1	Sediment supply	2010	King County	\$300,000	M2/M3
28	Restoration	2006	I	Operational Improvements to Locks	Operational Improvements to Improve Juvenile and Adult Chinook Survival (e.g., Add/replace strobe lights to locks to deter smolts and prevent entrainment.) (M204)	M	Tier 1	Fish Passage	Ongoing	Corps	\$ 150,000	M204
29	Habitat Restoration	2012		Invasive species control in all watershed sub-basins	Protect priority riparian habitat from knotweed and other priority invasive species. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, re-plant treated areas with native species and regularly monitor, detect and rapidly respond to any new infestations.	P	Tier 1-3	Riparian Vegetation,				
30	Restoration; Outreach and education	2012		Riparian area protection and restoration	Work with public and private landowners to protect and restore riparian areas in both rural and urban areas of the watershed (basin wide), including targeted technical assistance and outreach and education activities.	P	Tier 1-3	Riparian Vegetation,				

# WRIA 8 Three-Year Work Plan Priority Actions List - 2013

	B	C	D	E	F	G	H	I	V	W	X	AA
1	Plan Category	Year Added	Status: A=Active; C=Complete; I=Inactive	Project Name	Project Description	Population (C=Cedar, S=Sammamish, M=Migratory-both populations); P=Programmatic; A=Assessment	Priority Tier	Primary Limiting Factors Addressed	Likely end date	Likely sponsor	Total Cost of Project	Project ID
32	Outreach and education	2012		Increase Awareness and Support for Salmon Recovery	Increase support for salmon recovery, including promotion of programs that enable the public to see returning adult salmon and learn about salmon and river ecology, annual tour of habitat protection and restoration projects for elected officials, identifying and promoting watershed salmon recovery legislative priorities, coordinated messaging, etc.  Examples of Programs: Salmon SEESon Stewardship - Encourage community stewardship (e.g. C721 with C719/C731 but basinwide)	P	Tier 1	Hydrology, Water and Sediment Quality, Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage	Ongoing	Multiple stakeholders and WRIA 8	\$5,715,000	
33	Outreach and education	2012		Telling Salmon Recovery Story	Partner with Friends of the Cedar River Watershed to engage untapped funding sources in the development of a Salmon Recovery video series as a new chapter of the Watershed Report and as primary source material for science and civics curricula in the 13 school districts in WRIA 8.	P	Tier 1	Hydrology, Water and Sediment Quality, Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage				
34	Future Habitat Project Development	2006		5-6% PSAR Capacity Funds	Assistance to site-specific projects or addressing barriers to implementation of projects or programs. Identifying priorities for programmatic actions.  (No examples proposed)	P	All		Ongoing	Multiple stakeholders	\$161,655	
35	Habitat Protection	2006		Integration of regulatory flexibility to benefit salmon		P	Tier 1	Hydrology, Water and Sediment Quality, Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage	Ongoing	Multiple stakeholders and WRIA 8	\$175,000	
36	Habitat Protection	2006		Incentive programs	Examples of Programs: Incentives to restore ecosystem function (C007) Riparian - Negotiate for enhancement of riparian buffers (C006)	P	Tier 1	"	Ongoing	Multiple stakeholders and WRIA 8	\$798,000	
37	Habitat Protection	2006		Innovative approaches to stormwater and shoreline management	Examples of programs: Green Shorelines C729/C730, I730, C030/C033, I056/N051/N057: Outreach to encourage lakeshore restoration. Activities could include workshops, media campaign, permitting or financial incentives, technical assistance, lakeshore design criteria, or demonstration projects. Technical assistance for stormwater pollution abatement	P	Tier 1	"	Ongoing	Multiple stakeholders and WRIA 8	\$804,000	
38	Habitat Protection	2006		Increase Best Management Practices (BMPs)	Examples of Programs: Septic tank maintenance. Encourage commercial car wash and alternatives for charity car washes, and car maintenance.	P	Tier 1	"	Ongoing	Multiple stakeholders and WRIA 8	\$543,000	
39	Habitat Protection	2006		Support existing regulations that benefit salmon	No examples proposed	P	Tier 1	"	Ongoing	Multiple stakeholders and WRIA 8	\$1,359,000	
40	Monitoring	2006		Evaluating Cumulative Effectiveness	Evaluating Cumulative Effectiveness of Actions (Habitat)	A	All		Ongoing	Multiple stakeholders and WRIA 8	\$500,000	
41	Monitoring	2006		Stock Monitoring Support	Stock monitoring support (Fish In/Out)	A	All		Ongoing	Multiple stakeholders and WRIA 8	\$1,383,102	
42	Monitoring	2006		Project Effectiveness	Evaluate projects to determine the benefit to Chinook of specific features of restoration projects	A	All		Ongoing	Multiple stakeholders and WRIA 8	\$1,800,000	
43	Outreach and education	2006		Outreach and education		P	Tier 1	"	Ongoing	Multiple stakeholders and WRIA 8	\$5,715,000	
44	Watershed Plan Implementation & Coordination	2006		Salmon Recovery Coordination	Salmon Recovery Coordination/ Adaptive Management Framework and Plan Implementation tracking	P	All		Ongoing	Multiple stakeholders	\$300,000	
45	Watershed Plan Implementation & Coordination	2006		Habitat, Hatchery, and Harvest Integration	Enhanced Integration of Habitat, Hatchery, and Harvest Management Actions	P	All		Ongoing	Co-Managers and Multiple Stakeholders	\$150,000	
46	Watershed Plan Implementation & Coordination	2006		Lead Entity Coordination & Administrative Support of Watershed Committees	Lead entity coordination* & Administrative Support and coordination of the watershed committees / Completion and periodic revisions to the watershed salmon plan	P	All		Ongoing	Local gov't. & Lead entity	\$1,683,000	
47	Restoration	2011	C	Evans Creek Relocation Study	Study feasibility of relocating Evans Creek to the North, away from industrial area. Potential project elements would include increasing buffer, connecting wetlands to the creek, adding stormwater facilities to improve water quality, adding LWD to increase channel complexity. Some of the property where creek would be relocated is owned by City of Redmond	S	Tier 1	Channel Structure and Complexity		City of Redmond		N432
48	Restoration	2012	A	Evans Creek Relocation	The City of Redmond completed the Evans Creek Relocation study (N432) and is moving ahead with relocating Evans Creek in 2012. As a result, project N433 from the Comprehensive Plan project list (Restore Evans Creek in-place) will not be implemented.	S	1	Channel Structure and Complexity		City of Redmond		N432A
49	Restoration	2012	A	Kelsey Creek Restoration Phase 2	Restore downstream reach of Kelsey Creek at 13th Place in Bellevue, building off of Phase 1 restoration in 2011. Project includes bank stabilization via bioengineering and LWD installation. Spawning and rearing habitat will be created with the building of log jams, adding stream complexities and spawning gravels. Participating parcels are not yet determined.	S	Tier 2	Riparian Areas		Mid-Sound Fisheries Enhancement Group		N485 & N487
50	Restoration	2012	A	Riparian restoration in Friendly Village development along Cottage Lake Creek	Adopt-A-Stream Foundation completed some buffer restoration at the "Little Bit" equestrian center in 2011. The City of Redmond and/or Adopt-A-Stream Foundation will work to enhance riparian buffers at Friendly Village within a 3-year timeframe. In coordination with the City of Redmond, Adopt A Stream is currently developing a restoration strategy with the owners of Friendly Village in Redmond.	S	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment		Adopt-A-Stream Foundation; City of Redmond		N214
51	Restoration	2012	A	Restore riparian conditions along Cottage Lake Creek	Work with private landowners to create a riparian buffer around known Chinook redds on Cottage Lake Creek, just upstream of the Avondale Way road crossing. Install fencing to limit livestock access to creek, determine feasibility of livestock stream crossing.	S	Tier 1	Riparian areas		Mid-Sound Fisheries Enhancement Group		N289; N290; N291
52	Restoration	2012	A	Riparian restoration and invasive species control (North, Little Bear, Evans Cks)	Protect priority riparian habitat from knotweed and other priority invasive riparian weeds in the Sammamish River consistent with land use actions N40, N42, and N43. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to, projects N334, N339, N341, N343, N344, N346, N348, N349, N350, N351, N356, N358, N361, and N362 in the Sammamish River consistent with the restoration technical hypotheses for the Sammamish River in Plan Volume II (Other non-numbered projects also eligible).	S	Tier 1 & 2	Riparian areas; invasive species				N079A
53	Restoration	2012	A	Riparian restoration and invasive species control - Bear/Cottage Lake Creeks	Protect priority riparian habitat from knotweed and other priority invasive species in Bear and Cottage Lake Creeks consistent with land use action N13. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to projects N206, N211, N214, N221, N228, N236, N250, N251, N261, N262, N276, N281, N289, N298, N300, N307, N316, and N324 consistent with the restoration technical hypotheses for these tributary creeks in Plan Volume II (Other non-numbered projects also eligible).	S	Tier 1	Riparian areas; invasive species				N013A
54	Restoration	2012	A	Riparian restoration and invasive species control - Kelsey Creek	Protect priority riparian habitat from knotweed and other priority invasive species in Kelsey Creek consistent with land use action N130. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to projects N442, NN455, N457, N459, N464, N470, N478, N487, N494, N502, and N512 consistent with the restoration technical hypotheses for Kelsey Creek in Plan Volume II (Other non-numbered projects also eligible).	S	Tier 2	Riparian areas; invasive species				N130A
55	Restoration	2012	A	Riparian revegetation on Tosh Creek, tributary to the Sammamish River, between weir and Lake Sammamish	Enhance tributary 08-0141 (Tosh Creek Realignment and Culvert Replacement), including some revegetation near the Sammamish River in this area.	S	Tier 1	Riparian Areas		City of Redmond		N362
56	Restoration	2012	A	Sammamish River riparian restoration and invasive species control	Protect priority riparian habitat from knotweed and other priority invasive riparian weeds in the Sammamish River consistent with land use actions N40, N42, and N43. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to, projects N334, N339, N341, N343, N344, N346, N348, N349, N350, N351, N356, N358, N361, and N362 in the Sammamish River consistent with the restoration technical hypotheses for the Sammamish River in Plan Volume II (Other non-numbered projects also eligible).	S	Tier 1	Riparian areas; invasive species				N042A
57	Restoration	2012	A	Issaquah Creek riparian restoration and invasive species control	Protect priority riparian habitat from knotweed and other priority invasive species in Issaquah Creek consistent with land use actions I24, I28, and I30. Control invasive knotweed and other priority invasive species on a coordinated basis in priority riparian habitats and all areas upstream of them. After initial control is achieved, regularly monitor, detect and rapidly respond to any new infestations. Implement planting with native species in treated areas. Includes, but is not limited to projects I202, I209, I211, I212, I213, I219, I220, I223, I224, I226, I227, I228, I232, I236, I239, I243, I246, I248, I266, I272, I277, I278, and I280 in Issaquah Creek consistent with the restoration technical hypotheses for Issaquah Creek in Plan Volume II (Other non-numbered projects also eligible).	S	Tier 1	Riparian areas; invasive species				I028A
58	Acquisition	2011	A	Protect headwaters of Cottage Creek and Bear Creek	Acquire forest property, development rights/conservation easements, and provide enhanced incentives to retain and plant forest area environments. (N277)	S	Tier 1			Snohomish County		N277
59	Acquisition/Restoration	2011	A	Ebright Creek Enhancement and Acquisition (new for 2011: I310A and I310B)	Ebright Creek: Enhance mouth and protect lower reaches of Ebright Creek on East shore of Lake Sammamish. If property on lower reaches of creek is acquired there could be educational outreach opportunities on the site. (I-310) Description to include I310A Ebright Creek Wetland Enhancement and I310B Ebright Creek Fish Passage Restoration (NOTE: Projects considered by WRIA 8 Technical Committee to have benefits to juvenile Chinook at creek mouth)	S	Tier 1	Loss of Habitat, Reduced Habitat Capacity	2010	City of Sammamish	\$ 300,000	I310A; I310B

# WRIA 8 Three-Year Work Plan Priority Actions List - 2013

	B	C	D	E	F	G	H	I	V	W	X	AA
1	Plan Category	Year Added	Status: A=Active; C=Complete; I=Inactive	Project Name	Project Description	Population (C=Cedar, S=Sammamish, M=Migratory-both populations); P=Programmatic; A=Assessment	Priority Tier	Primary Limiting Factors Addressed	Likely end date	Likely sponsor	Total Cost of Project	Project ID
60	Restoration	2011	A	North Creek Reach 5- Riparian Restoration and Stream Enhancements	Riparian Restoration and Stream Enhancements: Work with Landowners in Reach 5 to restore riparian vegetation and to do stream enhancements. Adopt-a-Stream Project in Snohomish County portion of North Creek.  Project overlaps with Snohomish County North Creek Drainage Needs Report Project proposal.	S	Tier 2	Degraded Habitat- Channel Structure and Complexity, Degraded Habitat- Riparian Areas and LWD Recruitment	12/31/20 15	Snohomish County of		N379, N384
61	Restoration	2011	A	Sammamish River Restoration	Re-grade banks, create flood benches at or below high-water mark, and plant banks and benches with native vegetation. Particular focus should be given to the upper river (RM 11 to RM 13.6) and downstream of the major tributaries. An emerging bench/ wetland would provide juvenile salmonid shallow rearing habitat. (N356)	S	Tier 1	Floodplain connectivity and function		City of Redmond		N356
62	Restoration	2011	A	Lake Sammamish tributary delta improvements (Project Number TBD)	Improve natural delta formation processes along stream tributaries to Lake Sammamish to improve habitat for juvenile Chinook as well as Kokanee salmon. Projects (A,B,C) were investigated for maximum Chinook and Kokanee benefits and feasibility and approved by Kokanee Work Group in 2010: • A) Lewis Creek Delta Restoration and Upstream Sediment Stabilization; • B) Zaccuse Creek Trail Culvert Removal; • C) Laughing Jacobs Creek: Sammamish State Park Channel Re-route	S	Tier 1	Fish passage barrier; non-natal stream mouth and shoreline rearing areas (juvenile Chinook). B) fish passage barrier (kokanee). C)		A) City of Sammamish h; B) City of Sammamish h; C) WA State Parks		TBD A,B,C
63	Restoration	2011	A	Restoration at confluence of Issaquah Creek and E Fork Issaquah Creek	Project concepts developed by Kokanee Work Group for multiple species benefit: • I211A) Cybill-Madeleine Park Habitat Enhancement – Regrade banks, add large wood and other pool-forming features, create side-channel habitat • I211B) E Fork Issaquah Creek Confluence restoration – Remove armoring and re-grade right bank to increase connection to floodplain. Add large wood and plant native riparian species	S	Tier 1	instream habitat complexity (LWD, pools, spawning gravel)		City of Issaquah		I211A; I211B
64	Acquisition	2010	A	Reach 9- Bear Creek Waterways Program (N239)	Continue Bear Creek Waterways program to protect best remaining habitat. This reach includes Reach D. Change in feasibility with a willing seller of a large parcel.	S	Tier 1	Riparian Areas & LWD Recruitment	2012	King County	\$1,350,000	N239
65	Restoration	2010	A	Kelsey Creek Fish Passage and Channel Restoration - Reach 3 (N473)	N473 Fish Passage: Reduce jump height at concrete weirs using artificial riffle or other "safer" engineering. With N454/N458 - Installation of LWD, design and install LWD to provide hydraulic refuge areas during peak flows in stream segments 76-03 through 76-08 of Kelsey Creek. With N457/N459 - Restoration of Riparian Areas: Identify and implement opportunities to plant native coniferous trees in the riparian zones throughout the subarea. First priority should be the mainstem of Kelsey Creek.	S	Tier 2	Fish Passage, Riparian Areas & LWD Recruitment	2014	City of Bellevue		N473
66	Restoration	2010	A	Swamp Creek Regional Park Wetland and Stream Restoration (N335)	Swamp Creek Regional Park Wetland and Stream Restoration: As identified in the Sammamish River Corridor Action Plan, restore large, publicly owned wetland complex at the confluence of Swamp Creek and the Sammamish River, creating a diversity of wetland elevations and habitats in the floodplain.	S	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment, High Water				N335
67	Restoration	2010	A	Sammamish River Reach 2- Wetland Restoration on Right Bank in Bothell and Riparian Wetlands adjacent to 102nd Avenue bridge (N337/N338)	Wetland Restoration on Right Bank in Bothell: Restore historic wetlands on right bank downstream of 102nd Avenue bridge to be seasonally inundated wetlands with small channels connecting them to the river.(N337). Enhance and reconnect riparian wetlands and remnant side channels adjacent to 102nd Avenue bridge on left bank (N338)	S		Degraded Habitat- Floodplain Connectivity and Function	12/31/20 15	Bothell City of		N337 N338
68	Restoration Projects	2010	A	Little Bear Creek Reach 2- Fish Passage 132 Ave NE (N401) and Fish passage 134th Ave NE (N402) with riparian restoration (N403)	Fish Passage Benefiting Chinook: 132nd Avenue NE (a low flow blockage), RM 0.45, and 134th Ave NE (3 cement pipes, broken), RM 0.5, City of Woodinville; Restore Riparian Vegetation up to H 522 and add large wood.	S	Tier 2	Degraded Habitat- Fish Passage; Riparian Areas & LWD Recruitment	12/31/20 55	Woodinville City of	300000	N401, N402, N403
69	Acquisition	2006	A	Bear Creek Waterways Program	Continue Bear Creek Waterways program to protect best remaining habitat. Includes "Reach D" and Reach E. In particular, forested riparian parcels contiguous to already protected properties. Also protect undeveloped properties that can be restored. (N232, N303, N293, N286)	S	Tier 1	Riparian Areas & LWD Recruitment	0	King County	\$ 500,000	N232, 303, N293, N286
70	Acquisition	2006	A	Issaquah Waterways Acquisition and Restoration and Carey/ Holder/ Issaquah Creek Confluence	Issaquah Waterways Acquisition and Restoration (I249) and Carey/Holder/Issaquah Creek Confluence (I248, I250, I252): Middle Issaquah Reach 12 acquisition and restoration and the confluence of Issaquah, Carey and Holder Creeks. Acquisition in fee or conservation easement to restore or expand riparian buffers. Removal of invasives. Plan includes increased fenced buffers (100 ft for named tributaries and 50 ft. for unnamed tributaries), and restricted access to the riparian corridors. (I248, I249, I250, I252)	S	Tier 1	Riparian Areas & LWD Recruitment	2009	King County	\$ 700,000	I250
71	Hatchery	2007	A	Issaquah Integrated Fish Passage	Issaquah Integrated Fish Passage. Allow unhindered adult passage of Chinook and coho. Open up over 10 miles of habitat. (was "Issaquah Hatchery Dam Passage") (I221)	S	Tier 1	Spawning Habitat - Fish Passage/Anthropoge	2013	Issaquah, Corps of Engineers, Redmond	\$4,000,000	
72	Restoration	2006	A	Lower Bear Creek Restoration	Lower Bear Creek Restoration: Provide an enhanced channel alternative to the ditched and leveed lower 3,000 feet of Bear Creek, including a new refuge confluence with the Sammamish River. Add LWD, restore riparian conditions. (N201)	S	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment	2010		\$ 10,000,000	N201
73	Restoration	2006	A	Evans/Bear Creek Restoration	Evans/Bear Creek Restoration: In-channel restoration is needed in Bear Creek and Evans Creek through the former dairy farm at the confluence; RM 1.25 to RM 2.5 on Bear Creek and RM 1.2 to RM 4.6 on Evans Creek (Same as Keller Farm). Reconfigure channel where it has been widened due to past farm practices, enhance riparian area, add LWD, replant. (N208/N211)	S	Tier 1	Channel Structure and Complexity	2010	Redmond / WSDOT	\$ 3,000,000	N208 / N211
74	Restoration	2008	C	North Creek School (now called Clearwater School) Restoration	Continue North Creek School Project: Work with school to do additional riparian restoration, large woody debris addition and side channel enhancements on their property. This project has been one of Snohomish county's top priorities in recent years. (N378)	S	Tier 2	Channel Structure and Complexity, Riparian Areas & LWD Recruitment	2011	Snohomish County	\$ 374,710	N378
75	Restoration	2006	A	NLW Tribs Riparian Restoration	Riparian restoration in reach. Most of the reach is publicly owned, but need to remove invasive plants and replant with native vegetation. (N206)	S	Tier 1	Riparian Areas & LWD Recruitment	2010	Redmond	\$ 25,000	N206
76	Restoration	2006	A	Horse Farm Restoration (Bear Creek)	Restoration needed on Horse Farm property on NE 140th St. Reduce fine sediments, restore riparian areas. Pursue farm plan to address impacts to Bear Creek. (N228)	S	Tier 1	Riparian Areas & LWD Recruitment, Excessive Sediment	0	King Conservati on	\$ 25,000	N228
77	Restoration	2006	A	Paradise Valley Conservation Area Restoration (Bear Creek)	Remove invasive plants and plant riparian buffer along Bear Creek throughout Paradise Valley Conservation Area, as well as infested areas on public property immediately south of Woodinville-Duvall Road. (N276)	S	Tier 1	Riparian Areas & LWD Recruitment	0	Snohomish	\$ 50,000	N276
78	Restoration	2006	A	Transition Zone Restoration	Restore Transition Zone: Restoration of the left meander (Marymoor meander) below the weir as either the main channel or a seasonal channel with wetlands is recommended. Reroute tributary 0141 into wetland. Enhance or create pools at small tributary outlets, at meander bends downstream of the transition zone, and just downstream of the weir. Restoration elements could include excavation of new channel, creation of pools, and an overflow bench with wetland vegetation; removal of non-native vegetation; placement of gravel substrate in new channel; connection to capture hyporeic flows; and revegetation of riparian and wetland areas with native plants. (N358)	S	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment, High Water Temperatures, Reduced Access to Spawning Habitat - Fish	2011	King County	\$ 2,070,000	N358
79	Restoration	2007	A	Lower Bear Creek Confluence Restoration	Lower Bear Creek Confluence Restoration. Regrade banks, create flood benches at or below high-water mark, and plant banks and benches with native vegetation. Particular focus should be given to the upper river (RM 11 to RM 13.6) and downstream of the major tributaries. An emerging bench/wetland would provide juvenile salmonid shallow rearing habitat. (N356)	S	Tier 1	Regulatory Mechanisms		Redmond		
80	Restoration	2006	A	Sammamish River Tributary Mouth Restoration Feasibility and Restoration	Sammamish River Tributary Mouth Restoration Feasibility and Restoration: Feasibility and design study for each of the tributary mouths in the Sammamish River. Implement restoration projects. Includes Bear, Little Bear, North, and Swamp Creeks, as well as Willows (trib 0102), Peters (trib 0104), and tribs 0057A, 0068, 0069, 0095, 0095A, 0095B, and mouth of Horse Creek Western Branch. (N201, N339, N346, N357)	S	Tier 1	Floodplain connectivity and function	2015	King County	\$ 150,000	N201, N339, N346, N357
81	Restoration	2006	C	Sammamish State Park Restoration	Sammamish State Park Restoration: Revisions of the State's Plan for the park emphasis restoration of the wetlands, streams and lakeshore areas. EDT modeling results suggest park restoration in Reach 1 has highest restoration potential to affect VSP attributes, but based on an aggressive approach. Opportunity to work with State and consultants on restoration actions. (I204)	S	Tier 1	Regulatory Mechanisms	2010	Washingto n State Parks	\$ 150,000	I204
82	Restoration	2007	C	Squak Valley Park Restoration	Squak Valley Park Restoration. Improve habitat complexity and riparian forest, create off-channel areas connected to the stream, large woody debris placement. Levee removal (all or parts - unknown). Right bank Issaquah - 8. (I226)	S	Tier 1	Floodplain Connectivity & Function, Channel Structure and	2010	Issaquah	\$700,000	I226 B
83	Acquisition	2006	A	Bear Creek Forest Cover Protection	Bear Creek Forest Cover Protection: Acquire forest property, development rights/conservation easements, and provide enhanced incentives to retain and plant forest area environments. Particularly forested area south of Puget Power Trail and at corner of 116th and Avondale Road. (N216)	S	Tier 1	Riparian Areas & LWD Recruitment, Water Quality	2010	King County	\$ 800,000	N216
84	Acquisition	2006	A	Little Bear and Great Dane Creeks Forested Wetland Protection	Forest Cover, Wetland Protection: Protect large, undeveloped forested wetland on both Little Bear and Great Dane Creeks. Approximately 100 acres including 10 parcels. Also listed under Great Dane Creek Reach 1. (N422)	S	Tier 2	Water Quality, Reduced Habitat Capacity	2009	Snohomish County	\$ 1,000,000	N422
85	Acquisition	2006	A	Little Bear Reach Riparian Wetland Protection	Protect Riparian Wetland in Little Bear Reach 10: Protect undeveloped, forested wetlands (second growth forest) in reach covering approximately 55 acres and 12 parcels owned by two landowners. Enhance with large woody debris. (N424)	S	Tier 2	LWD Recruitment, Water Quality, Reduced Habitat	2010	Snohomish County	\$ 1,000,000	N424
86	Acquisition	2006	A	Little Bear Creek Forested Headwater Wetlands Protection	Little Bear Forest Cover Protection: Protect forested, headwater wetlands from corner of 51st and 180th upstream approximately 2 miles along Little Bear Creek through conservation easements and acquisition. Includes three wetland complexes totaling over 200 acres: 4 parcels along 180th St. on mainstem; ~7 parcels along Trout Stream from 180th to Interurban Blvd.; and 5 parcels north of 164th Street to 156th Street. (N429)	S	Tier 2	Riparian Areas & LWD Recruitment, Water Quality	2011	Snohomish County	\$ 1,500,000	N429
87	Acquisition	2007	A	Issaquah Waterways Acquisition and Restoration	Acquire and restore undeveloped streamside property on Issaquah Creek downstream of Juniper St. and downstream of Bernsen Park (I209 and I210)	S	Tier 1	Riparian Vegetation				
88	Acquisition	2007	I	Wildwood Acquisition	Wildwood Acquisition: Acquisition of the left bank property opposite recent acquisition of one of the few remaining large undeveloped parcels (8 acres - Johnson property) on lower Issaquah Creek. (I222)	S	Tier 1	Riparian Areas & LWD Recruitment	2009	Issaquah	\$ 300,000	I222

# WRIA 8 Three-Year Work Plan Priority Actions List - 2013

	B	C	D	E	F	G	H	I	V	W	X	AA
1	Plan Category	Year Added	Status: A=Active; C=Complete; I=Inactive	Project Name	Project Description	Population (C=Cedar, S=Sammamish, M=Migratory-both populations); P=Programmatic; A=Assessment	Priority Tier	Primary Limiting Factors Addressed	Likely end date	Likely sponsor	Total Cost of Project	Project ID
89	Acquisition and Restoration	2007	A	Bush Lane Acquisition and Restoration	Bush Lane Acquisition and restoration. When combined with Pickering Place could create a large protected/restored section of Issaquah Creek on both banks and some of lower NF Issaquah. Stream, riparian, and floodplain restoration on 1,200 feet of Issaquah Creek east bank. Stream/buffer enhancements can be combined with other public use of upland area of site, such as active recreation. (I206 & I208)	S	Tier 1	Floodplain Connectivity & Function, Channel Structure and Complexity	2010	Issaquah		I206, I208, I274, I270
90	Restoration	2006	A	Evaluate Locations for LWD Additions	Evaluate locations for LWD addition. Focus on Reach 6, which has the highest restoration potential but does not presently include any projects. (N242)	S	Tier 1	Channel Structure and Complexity, Riparian Areas & LWD Recruitment	2013	King County	\$ 350,000	N242
91	Restoration	2006	A	Cottage Creek Restoration	Cottage Creek: Explore opportunities to improve floodplain connection in reach by removing riprap or artificial constrictions. (N282)	S	Tier 1	Channel Structure and Complexity	2010	King County	\$ 90,000	N282
92	Restoration	2007	A	Pickering Place Channel and Riparian Restoration	Pickering Place Channel and Riparian Restoration, Stream restoration along 1,800 feet of west bank Issaquah Creek. Restoration could include removal of hardened banks and floodplain, side channel, and riparian enhancements. (I207)	S	Tier 1	Floodplain Connectivity & Function, Channel Structure and Complexity	2010	Issaquah	\$500,000	I207
93	Restoration	2007	C	Juniper Acres Restoration	Juniper Acres Restoration. A small 2-acre parcel recently acquired. When combined with Issaquah Park and other City owned parcels, represents good restoration potential in urban reaches. (I212)	S	Tier 1	Floodplain Connectivity & Function	2010	Issaquah	\$150,000	I212
94	Acquisition	2013	A	Reach 15 - Bear Creek Waterways Program	Continue Bear Creek Waterways Program to protect best remaining habitat. This reach includes Reach A. In particular, protect Stevens and Doolittle properties.	S	Tier 1	Water Quality, High Water Temperatures		King County	\$350,000	N272
95	Restoration	2013	A	Enhance Tributary Confluences of Derby, Gold, and Woodin Creeks	Enhance tributary confluence of Derby Creek with Sammamish River. Project should include as appropriate correction of fish passage barriers, riparian restoration, placement of large woody debris, and creation of cool-water refuge pool.	S	Tier 1	Barriers, Water Quality, Riparian Areas, Channel		King County	\$1,100,000	N342
96	Restoration	2013	A	McCollum Park Restoration	Install grade control structures from Northwest Stream Center to 128th to reduce peak flows and erosion; restore riparian vegetation.	S	Tier 2	Channel Structure and Complexity, Riparian Areas		Adopt-A-Stream Foundation		N395
97	Acquisition	2013	A	Hooven Bog Acquisition	targeted area for acquisition is approximately 25 acres, which will offer protection to a headwaters area of Cottage Lake Creek and thus provide protection to water quality and a source of cold water input.	S	Tier 1	Water Quality, High Water Temperatures		Sno-King Watershed Council		N319A