Three-Year Implementation Plan Narrative for Lake Washington/Cedar/
Sammamish Watershed (WRIA 8)
April 2008

Introduction

This document provides the narrative for the 2008 WRIA 8 3-Year Work Plan update. Both the capital and non-capital actions listed in the 3-Year Plan reflect the most important known watershed priorities to start on a recovery trajectory. The 3-Year Work Plan worksheet was updated last year to include new work plan categories, such as hatchery capital projects and monitoring support. This update does not cover categories such as; Harvest Program Management support and Instream Flow protection (for which there is no WRIA 8 based 2514 planning process).

The worksheet begins with adaptive management as the organizing framework for biological, practical, and policy implementation. Coordination is required to continue collaboration amongst the broad and diverse communities within WRIA 8 and to coordinate both adaptive management at the correct scale and implementation across jurisdictional boundaries. This section also includes an update on progress toward integration of all the Hs, which began in 2007 in WRIA 8.

The 3-Year Work Plan then covers the programmatic recommendations followed by the site specific project recommendations. This is repeated for each subarea, beginning with the Cedar River, then focuses on the Migratory, North Lake Washington, and Issaquah subareas. The worksheet is further organized by specific watershed strategies for the site specific actions. Each action in the worksheet identifies the primary limiting factor that needs to be addressed by that action. This information has not changed. Attachment A: Limiting Factor Key lists and explains these limiting factors. For this level of detail for the programmatic actions, refer to Attachment B: WRIA 8 Programmatic Actions. Because there are over 100 programmatic actions and many are ongoing, they were summarized by major themes for the 3-Year Work Plan. Program actions highlighted this year include Adaptive Management and Monitoring as well as H-integration.

Estimated costs for each action in the 3-Year Work Plan are based on the 10-Year Start List cost estimates from the WRIA 8 Chinook Salmon Conservation Plan or other recent updates. The 3-Year Implementation Plan was developed in consultation with the WRIA 8 Salmon Recovery Council and Technical Committee.

The narrative explains the conservation and practical rationale for the 3-Year Work Plan and discusses the NOAA Technical Review Team's (TRT) comments on the 2007 3-Year Work Plan and WRIA 8 chapter of the Puget Sound Recovery Plan. Section 1, Conservation Rationale, explains the biological imperatives that necessitates the importance of actions in particular areas and

the need to improve landscape-level processes throughout WRIA 8. Section II, Practical Rationale, talks about the practical considerations and criteria that influence the development and yearly revision of the 3-Year Work Plan. The final section III describes the ways in which the WRIA 8 3-Year Work Plan reflects TRT comments and guidance received since completion of the Puget Sound Recovery Plan.

I. Conservation Rationale

The current risk of extinction posed to the Cedar River and Sammamish River Chinook populations is extreme and must be reduced through actions that create habitat conditions that support viability of each population. Due to the declining productivity trend of the Cedar population (overall trend since 1964, though productivity has increased in past couple of years) and the fact that the Sammamish River population is supported by a hatchery with out-of-basin population affiliation (Green River), the Technical Committee hypothesizes that a relatively higher priority should be placed on risk reduction for the Cedar River Chinook population. However, the Technical Committee also recommends that habitat protection and restoration actions are needed throughout WRIA 8 in order to provide habitat diversity that can support the genetic diversity of multiple salmon species over time.

Cedar River Chinook

The greatest source of risk comes from reduction in habitat productivity and the potential loss of the instream juvenile rearing life history strategy. In addition, hatchery influences pose a significant risk to the genetic diversity of the population. Rehabilitation of the Cedar River Chinook population requires conservation actions to protect and restore habitat in the Tier 1, Tier 2, and migratory subareas. The main source of productivity for this population is in the Tier 1 subareas along the mainstem of the Cedar River. Restoration of these subareas is important to increase productivity and create habitat conditions that support the instream juvenile rearing life history strategy (specifically the fry colonization life stage). Hypotheses about conservation actions are focused on the protection of water quality and high quality instream habitats used for spawning and juvenile rearing, such as intact pool habitats, riparian buffers, and LWD.

Restoration hypotheses are focused on increasing the availability of pool habitats and off-channel areas for juvenile Chinook by reconnecting floodplain areas, adding LWD, and re-planting riparian vegetation. In addition to restoration actions in the mainstem Cedar, juvenile Chinook would benefit from shoreline restoration

actions designed to improve rearing and refuge habitat and reduce predator efficiency in the south end of Lake Washington and in the Ship Canal. Shoreline restoration activities should focus on removal of bulkheads and rip-rap to create sandy, shallow habitat areas. These restoration actions should be focused on areas adjacent to the mouth of the Cedar River and in nearby areas of southern Lake Washington, along the south end of Mercer Island, at the mouths of small creeks, and in Union Bay.

Migratory and Rearing Areas

In order to create and maintain habitat conditions that support viable populations of Chinook, conservation actions should address habitats used at different stages of the Chinook life cycle. Restoration and enhancement of the migratory and rearing areas (including the nearshore, estuary, Lake Washington, the Ship Canal and Locks, the Sammamish River, and Lake Sammamish) have a high potential to benefit Chinook productivity and abundance, and in many cases could benefit multiple populations. In the lakes, actions should focus on creating habitat conditions that improve rearing and refuge opportunities, such as the restoration of sandy shallow water areas and restoration of stream deltas. In the Sammamish River, it is hypothesized that re-meandering the river will restore connections with cool groundwater while increasing habitat diversity, benefiting juvenile out-migrants as well as returning adults.

High temperatures in the Ship Canal during the juvenile out-migration can become extremely stressful (>19 C) and affect the behavior and success of smolts in reaching Puget Sound. High temperatures may also affect predation rates in the Ship Canal, especially those of bass. Conservation actions should focus on providing habitat refuge for Chinook and reducing high temperatures that drive predation.

Finally, the nearshore and estuary subareas are critical for migration and rearing of Chinook populations (as well as other species) from multiple WRIAs. While there are relatively greater uncertainties about nearshore habitat and Chinook use of that habitat, experimental approaches to the protection of functioning habitat and the restoration of ecosystem processes (particularly sediment supply) and habitats (particularly eelgrass beds and ‘pocket’ estuaries) should be implemented.

Sammamish River Chinook: North Lake Washington Sub-Population

The low abundance and productivity of the NLW Chinook sub-population results from reduced habitat productivity and severe reduction in the hypothesized spatial distribution of the population from several stream systems historically

(with approximately equal contribution to the population based on habitat suitability - Bear, Little Bear, North, Swamp and Kelsey Creeks) to one stream system (Bear Creek) that is the core of the breeding population. Although the inclusion of Issaquah Creek increases the overall spatial distribution of the Sammamish population, improved habitat productivity in the North Lake Washington tributaries is essential to increase the distribution and viability of the naturally-spawning component of the population.

In order to rehabilitate this population and reduce the risk of extinction, conservation actions should be targeted at protecting the existing source of productivity in the Bear Creek system, restoring the habitat capacity of Tier 2 NLW tributary systems, and restoring the channel meanders and pool habitats that support juvenile rearing and adult migration in the Sammamish River corridor that benefit all rearing and migration life stages for Chinook salmon that are part of the Sammamish population complex.

Sammamish River Chinook: Issaquah Creek Chinook Sub-Population

The WRIA 8 Technical Committee is concerned about the risk to independent Chinook populations posed by straying of hatchery and naturally-produced hatchery-origin Chinook. The Technical Committee calls on NOAA Fisheries and the co-managers to implement the recommendations of the Hatchery Science Review Group (HSRG, 2004) and make any other appropriate adaptive management changes at the Issaquah and other Puget Sound hatcheries that are necessary to reduce risk to the Chinook populations in WRIA 8 and promote local adaptations.

Within the Issaquah system, conservation actions for the Issaquah Chinook sub-population should focus on protection of existing high-quality habitat in the Issaquah system. Habitat restoration actions are intended to increase habitat diversity and enhance the juvenile rearing and egg incubation life stages. Increased habitat productivity in the Issaquah system is also intended to support hatchery objectives for supply of natural origin broodstock, as recommended by the HSRG. Production of excess Issaquah hatchery fish raises concerns about increased hatchery contribution to the Cedar River and Bear Creek populations. The contribution of hatchery origin spawners in the Cedar Basin was 14% in 2007, not accounting for 93 marked Chinook (of 397) passed above Landsburg Dam, compared to the Bear/Cottage Basin which had 75% hatchery origin spawners in 2007. However, the overall stray rate of hatchery fish compared to the total number of Issaquah hatchery returns (13,482 in 2007) is very low (0.7% in the Cedar River Basin and 0.5% in the Bear/Cottage Basin). In the absence of actions to limit straying, Issaquah Creek restoration (notably, enhanced passage at the hatchery intake weir) will likely, in the short term, increase the numbers of straying adults. The Issaquah Integrated Fish Passage Improvement – Phase I

feasibility study will, in part, identify population effects from the proposed action. Ongoing H-integration work also accounts for known effects of hatchery influence on the spawning ground, and uses this information to make recommendations consistent with an Adaptive Management framework. The WRIA 8 Technical Committee composed a response to NOAA-TRT's concerns regarding the potential risks associated with Issaquah restoration actions (Attachment C). Additional work will be necessary during 2008 to identify and agree on actions to reduce the percentage of hatchery-origin Chinook in the Cedar River and North Lake Washington tributaries to levels that are consistent with HSRG hatchery reform recommendations.

H-Integration

The discussion of H-integration in the July 2005 WRIA 8 Salmon Conservation Plan is limited to a discussion of the ramifications of potential Chinook population scenarios for hatchery and habitat management objectives. The Plan generally supports implementation of the Hatchery Science Review Group's (HSRG) recommendations for WRIA 8, but does not make specific hatchery or harvest recommendations beyond noting the risk that increased hatchery contributions to the independent Cedar population could result in reduced genetic diversity. In the absence of explicit recommendations for how to sequence strategies for reducing H-effects on VSP parameters, there are clearly management alternatives that could be explored.

Since ratification of the Plan, WRIA 8 has completed additional genetic analysis of WRIA 8 Chinook and adopted a two-population approach (described in WRIA 8 Plan Volume I, Chapter 4) that is consistent with the TRT's population determination. The adoption of the two population scenario has led to the inclusion of restoration actions intended to benefit the hatchery component of the Sammamish Chinook population in Issaquah Creek. While this hatchery-supported sub-population faces the lowest risk relative to the Cedar population and the North Lake Washington sub-population, habitat restoration in Issaquah would support the shared objective of increasing natural-origin broodstock at the Issaquah hatchery as a by-product of presumed increased natural production from Issaquah Creek.

The H-integration work group (convened by the Co-managers) began meeting in 2007, and is currently working to develop integrated strategies among the H-sectors that are consistent with predictions of moving WRIA 8 Chinook populations toward recovery goals. The group has nearly completed the first two steps in the process, which include (1) identifying the key players, and (2) gaining a common understanding of how each H affects fish population status in terms of the Viable Salmonid Parameters. The next steps will include agreeing upon a common set of goals and measurable outcomes across the H-sectors, and

selecting a complementary suite of actions to achieve the outcomes. This process is essential if we are to ensure that our collective actions mutually support the conservation and recovery of Chinook and other listed salmonids in WRIA 8.

II. Practical Rationale

Practical Rationale Overview

Given the high risk of extinction currently faced by the Cedar Chinook population and the naturally-spawning portion of the Sammamish Chinook population, WRIA 8's proposed 3-Year Work Plan focuses on programmatic and capital projects that will work toward reducing risk to these populations. In addition, habitat restoration actions are proposed to increase Chinook productivity. However, we recognize that in many cases habitat actions have a lag time before full benefits of the actions are seen, making it essential that we also address direct sources of mortality during the first three years of implementation. These direct sources of mortality include passage at the Locks and predation in the Lakes.

As described in the Conservation Strategy, the Cedar Chinook population has the highest certainty of being independent due to hatchery influence in the Sammamish population, and the highest risk of extinction due to the overall decline in productivity. However, the natural spawning component of the Sammamish population is also at high risk with low productivity and extremely low abundance. Due to the high risk faced by both the Cedar Chinook population and the naturally spawning component of the Sammamish Chinook population, and the fact that recovery of both populations will require a much longer timeframe than the 10-year Puget Sound Recovery Plan, we advocate implementing protection and restoration actions for both Chinook populations. Numerous entities (jurisdictions, state and local agencies, NGOS) throughout the watershed have, and will, implement protection and restoration actions based on fee areas, jurisdictional boundaries, permit authority, or other practical considerations that will expand the scope and footprint of plan implementation in supplementary ways to this 3-Year Work Plan.

Given the above context, it is important to offer the best protection and restoration guidance within the context of watershed priorities. While the Cedar population is the higher priority, we cannot afford to lose functioning habitat for the Sammamish population. We also cannot afford to delay restoration efforts due to the time lag necessary for habitat restoration actions to begin to confer benefits for Chinook life stages. For these reasons actions are included for the North Lake Washington tributaries and the Sammamish River. Restoration actions are included for Issaquah Creek, as increased natural-origin broodstock

will be needed to meet integrated hatchery management objectives and reduce the possibility that broodstock would be collected from Bear Creek or even the Cedar River (see 2007 Technical Committee letter to TRT, Appendix C). Hatchery and harvest management actions are necessary to reduce the risk to genetic diversity, while habitat actions proceed to increase natural production.

2008 Criteria

The original 2006 3-Year Work Plan was created with the highest priority projects from the WRIA 8 10-Year Start List. Most of the projects were ready to begin implementation (high feasibility) or were already underway in an earlier phase of a multi-phased project. Some projects were added that span more than three years but would begin within the three-year period. A few other projects were not ready to begin implementation within three years but were of such high priority that they merited being included with the intent to move them toward implementation.

For the 2008 update the WRIA 8 Technical Committee has agreed on a set of criteria to use when moving actions from the comprehensive list (over 300 projects)to the 10-Year Start List or into the 3-Year Work Plan. Comprehensive list actions may move onto the 10-Year Start list if (1) there is a science basis [EDT modeling, adaptive management, results of a research study, or H-Integration], (2) there is a change in feasibility and the project has a high benefit to Chinook, (3) the project had a high benefit/high feasibility rating but was not included in the Start List due to a limit on the total number of actions and is similar to a neighboring project included on the Start List, or (4) the number of projects added does not exceed the number of projects completed or removed from the Start List. 10-Year Start List Actions may move to the 3-Year Work Plan if (1) the action is high priority and ready for implementation within the next three years, or (2) the action is high priority and needs funding for feasibility and design to move it toward construction in the next three years.

Practical Rationale for the Cedar River Chinook Population

It is hypothesized that conservation actions for the Cedar River Chinook population should focus on increasing productivity of the fry colonization and 0-age active rearing life stages by improving rearing conditions in the Cedar River. Because we hypothesize restoration potential in the river is approximately equal to the potential in Lake Washington, actions should also reduce predator efficiency in Lake Washington by restoring shallow water habitat, overhanging vegetation, and creek mouths. In addition, direct mortality of juveniles and adult salmon should be reduced by improving passage and estuarine mixing at the Ballard Locks. Finally, nearshore habitat, particularly sediment supply processes

and pocket estuary connections should be restored to benefit Chinook salmon and forage fish from WRIA 8 and other watersheds in Puget Sound.

Efforts to improve juvenile rearing habitat in the Cedar are focused around the 'landslide reach' (EDT Reach 4), site of a landslide during the 2001 Nisqually earthquake that altered the mainstem channel in and around Ron Regis park and deposited a considerable amount of LWD in the channel. This site is considered a 'reference' reach for restoration of the Cedar River. EDT modeling indicates that this reach has the highest protection potential in the Cedar River as a result of two things: (1) high levels of habitat diversity and (2) lower river reach dependence by most juvenile Chinook fry migrating downstream.

Capital projects during the first three years of implementation attempt to increase fry colonization and juvenile rearing success by protecting and restoring areas of floodplain connectivity in and around areas that have high Chinook spawning concentrations. These actions include:

1. Protecting the last private parcel upstream of Ron Regis park within the floodplain of the landslide 'reference' reach (C213). (This project code is the nomenclature used in the WRIA 8 Chinook Conservation Plan and can be used to reference more information in the Conservation Plan about this project.)
2. Protecting functioning floodplain habitat downstream of Chinook spawning concentrations and adjacent to existing and potential restoration sites (C228 Jones Reach, C232 Belmondo, C252*/253* Dorre Don Meanders). These protection actions are necessary to ensure that no further degradation of floodplain connectivity occurs, and to maximize the beneficial impacts of adjacent restoration projects.
3. Levee setbacks and/or removals to increase floodplain connectivity (C235* Rainbow Bend Levee Setback, C222 Cedar Rapids/Ricardi)
4. Floodplain buyouts to enable future floodplain reconnections (C236* Rainbow Bend, C244 218th Place Side-Channel, C245 Mouth of Taylor Creek)

The asterisk * denotes which actions have been modeled using EDT

Within Lake Washington, restoration actions are focused on the southern end of the lake to benefit the fry-migrant life stage that rears in the lake, as well as migrating smolts. We hypothesize that restoration of shallow sandy habitat with overhanging vegetation will reduce predator efficiency through increased predator avoidance, and result in increased juvenile survival. Lake restoration projects have greater effectiveness uncertainty than the in-stream habitat projects, but the proposed projects build on pre- and post-project monitoring of recent restoration projects in Seward Park and the SRFB-funded Rainier Beach park restoration. The proposed 3-Year Work Plan anticipates funding one lake restoration project per year in the south end of the lake, with design modifications and improvements based on on-going monitoring of other similar projects.

Lake restoration actions in the first three years are focused on publicly owned park land, and attempt to leverage other actions such as master planning for the Mapes Creek neighborhood. Because approximately 95% of the lake shoreline is privately owned, programmatic actions in the first three years promote shoreline and riparian restoration actions and reduction in over-water structures on private property. This includes demonstration sites intended to increase landowner willingness to adopt more environmentally-friendly practices. These programmatic actions are essential if we are to successfully restore lake shoreline habitats without buying out large areas of some of the most expensive real estate in the entire state of Washington.

In the Ship Canal and Locks, considerable work has been completed with the Corps of Engineers to dramatically increase survival at the Ballard Locks through the installation of the smolt slides and other modifications. Over the next three years we anticipate continued improvements at the Locks to reduce direct mortality of both juveniles and adults by increasing fish use of either the smolt slides or the fish ladder, and operational changes to increase the area of fresh and saltwater mixing. In addition, the 3-Year Work Plan includes habitat restoration and removal of overwater structures immediately downstream of the Ballard Locks to benefit juvenile Chinook.

The nearshore component of the WRIA 8 plan includes significant uncertainties. Actions during the first three years are focused on identifying specific locations where feeder bluff connections to the nearshore environment can be restored, and restoring pocket estuaries where possible. The railroad severely constrains restoration opportunities in WRIA 8, making a feasibility study essential for WRIA 8 to implement feeder bluff projects throughout the 10-year plan horizon. Beach seining efforts along the WRIA 8 and WRIA 9 shoreline show that the nearshore area and Salmon Bay are used by juvenile Chinook from many WRIAs, and we therefore hypothesize that these nearshore restoration projects will increase juvenile rearing habitat for Chinook from multiple Puget Sound populations. Finally, it is hypothesized that increased effort to develop nearshore projects is necessary to support the viability of the WRIA 8 partnership, as a strengthened nearshore component of our conservation strategy is necessary to maintain participation.

Sammamish River Chinook Population Practical Rationale

As noted above, WRIA 8 has identified a relatively higher risk for the Cedar Chinook population due to the higher proportion of natural origin spawners. This does not mean, however, that actions are not necessary for the Sammamish population. The naturally spawning sub-population has low abundance and low productivity, and actions are necessary in the near-term to secure this population from any increase in extinction risk. Actions are also necessary to ensure that

the habitat potential exists to support recovery in the future as population productivity increases and the distribution expands into the Tier 2 North Lake Washington tributaries (e.g. Little Bear and North Creeks). This requires programmatic actions to maintain and restore landscape level processes at risk from development as well as capital projects to acquire functioning habitat or restore degraded habitats. During the first three years these acquisitions include headwater areas in Upper Bear Creek, Cottage/Cold Creek, Little Bear Creek, and North Creek to maintain forest cover, water quality, and hydrologic processes.

Finally, WRIA 8's proposed actions during the first three years attempt to leverage existing efforts by the City of Redmond and the Army Corps of Engineers working with regional partners to protect and restore the Sammamish River and Bear Creek corridors. Specific actions in the first three years include the Sammamish River Transition Zone restoration, which is intended to improve floodplain connectivity, groundwater connectivity, and riparian function at the head of the Sammamish River. We have also included a feasibility and design study to restore tributary confluences with the Sammamish River to provide areas of cold groundwater refuges for migrating adult Chinook. This feasibility study would result in specific restoration projects that could be supported by individual jurisdictions in the Sammamish River corridor for SRFB, Corps, and other funding beginning in 2009. The City of Redmond is expanding previous channel restoration efforts in Bear Creek to include the lower 3000' of Bear Creek at the confluence with the Sammamish River. The City is also working to protect approximately 120 acres at the confluence of Bear and Evans Creeks (the Keller Farm property) from development and establish a wetland mitigation bank, with restoration work likely beginning after 2009.

Issaquah Creek Chinook are the hatchery-driven sub-population of the Sammamish River independent Chinook population. As described in the 'Consistency with TRT Recommendations' section below, WRIA 8 has recently adopted a two-population approach that is consistent with the TRT's population determination. Our objectives for this sub-population are to secure functioning habitat and restore habitat productivity. Improved habitat productivity in Issaquah Creek would help the hatchery managers achieve hatchery reform objectives for increased natural-origin broodstock, and decrease the risk that broodstock would be collected from either Bear Creek or the Cedar River to supply the hatchery. Habitat protection and restoration actions in the Issaquah basin are also necessary in the first three years of implementation to strengthen the WRIA partnership and enhance connections with stakeholders in this basin, and to support the hatchery management objectives of the co-managers.

Much of the headwater area of Issaquah Creek is protected. Remaining actions include acquisition of floodplain parcels to enable restoration of floodplain connectivity, riparian function, and LWD along the mainstem of Issaquah Creek,

particularly at tributary confluences. Program outreach to rural landowners to apply BMPs for riparian enhancement is also a basin-wide objective, given the highly erodible floodplain soils that are susceptible to erosion with even limited modified land use.

Adaptive Management and Monitoring Practical Rationale

We are working to incorporate Adaptive Management and Monitoring guidance from the Puget Sound Salmon Recovery Plan and awaiting additional regional guidance from the Puget Sound Partnership, while locally we act to organize for monitoring our actions. During the first three years of plan implementation we will continue to fund actions that maintain and enhance the WRIA 8 partnership, as well as actions that support improvements to the plan as we learn more about how our actions impact Chinook populations and their habitat. Specific actions include cumulative effectiveness monitoring of Chinook populations via spawner surveys and outmigrant trapping, along with implementation of the EPA's EMAP protocols to evaluate the status and trends of landscape level and instream habitat conditions. We will also include annual updates and revisions to the WRIA 8 plan in response to new information, and anticipate that these revisions will include increased coordination of habitat, harvest, and hatchery management actions as a result of the regional H-integration effort during 2008.

Monitoring of Chinook spawners has revealed an increase in adult escapement to the spawning grounds over the past couple of years in both the Cedar and Bear/Cottage basins. Moreover, the number of natural origin spawners returning to the Cedar River above Landsburg Dam has increased since passage was allowed in 2003. Estimates of redd:redd productivity have been variable, but generally above replacement (1.0) in the Cedar River Basin; redd:redd productivity in the Bear/Cottage Basin, however, has been far less than 1.0 for most years monitored. Outmigrant monitoring has revealed that the smolt life history is more prevalent in the Bear/Cottage Basin, as compared to the Cedar that has a higher prevalence of the fry life history strategy (which has also been highly variable among years).

Practical Considerations Regarding Costs and Timing

The WRIA 8 Plan estimated approximately $17 million per year for habitat protection and restoration actions. This proposed 3-Year Work Plan is slightly higher than this estimate for two primary reasons: the need to acquire property now in order to secure it from potential future development, and the need to acquire sufficient Cedar floodplain area to design and construct floodplain restoration actions within the 10-year timeframe at the most biologically relevant and effective scale. A prime example of a floodplain restoration action at the right

scale is the Rainbow Bend – Cedar Grove Road floodplain buyout and restoration. The upstream end of the meander bend is currently being acquired using SRFB and FEMA funds. The parcels in the downstream portion of the meander bend have been a top priority for acquisition since the 1993 Cedar River Basin Plan, but have not been acquired due to high cost and other feasibility issues. For this reason it was anticipated that the restoration action at the Cedar Grove levee would be a small scale setback that would restore connectivity but would still provide flood protection for the downstream parcels. Since completion of the WRIA 8 Plan the feasibility of acquiring the downstream parcels has changed. Major purchases are now underway that will allow a levee setback or removal that will provide significantly higher benefits by restoring connectivity in the entire meander bend.

Costs within the 3-Year Work Plan primarily come from the "ballpark cost estimates" prepared for the WRIA 8 Plan. Some are updated when new information is provided, such as for the lower Bear Creek project in 2008. Generally costs are more accurate when implementation begins because of the refinement needed for budgeting. Costs vary from a single phase of a project to multi-phased projects. Programmatic actions were estimated at the time of the WRIA 8 Plan using Shared Strategy's Primer.

II. Consistency with Technical Recovery Team Recommendations

WRIA 8's 3-Year Work Plan attempts to respond to comments received from the TRT in response to the July 2005 Plan and in response to comments on the previous 3-Year Work Plans. The Plan reflects TRT guidance in the following ways:

- **Future Development**: The TRT correctly identified future development and land conversion as the most significant threat to the long-term conservation and recovery of Chinook in WRIA 8 as stated in the Plan, but actions to address these concerns relied on a menu of voluntary actions that did not provide certainty that this threat would be adequately addressed. The programmatic actions included in the Plan and described in this submittal are intended to support the efforts of local governments and individual citizens to reduce the impact of existing and proposed development on landscape processes and in-stream habitat. These programmatic activities are recognized by the WRIA partners as fundamental to the success of our Chinook conservation efforts. In addition, we recognize that our ability to implement capital projects in many areas of WRIA 8 is contingent upon landowner support that is generated by programmatic activities. Finally, regional investments in

habitat protection and restoration capital projects will be insufficient to achieve our salmon conservation objectives in the absence of programmatic activities that protect and restore landscape-scale processes that create and maintain aquatic habitat.

- **Treatment phase of EDT:** The July 2005 Plan includes habitat conservation actions hypothesized to address the 'diagnosis' of habitat protection and restoration priorities from the EDT habitat model. Because the effectiveness of these proposed actions had not been evaluated, the TRT noted that WRIA 8 Plan did not include restoration actions. We have since completed an evaluation of the effectiveness of select protection and restoration actions identified on the Start List. These results indicate that instream restoration Start List actions alone will increase productivity, juvenile and adult abundance, and life history diversity, but that similar additional action (greater effort) beyond those evaluated so far will be necessary to achieve our objectives. For the Sammamish population, results indicate that our instream habitat restoration actions will improve VSP attributes, but that additional landscape-level restoration actions to restore sediment and hydrologic processes will be necessary to achieve our 10-year population objectives. For both populations, modeling results underscore the fundamental importance of programmatic actions that are intended to protect habitat functions. More detailed information describing these results is available upon request.

- **Action timing and sequencing:** Action prioritization is reflected in a number of ways in the 3-Year Plan, by action type (Programmatic), by ESA-listed population (Cedar), by geographic area (Cedar, Migratory, North Lake Washington tributaries/Sammamish, then Issaquah), and by key limiting factors or EDT diagnosis of life stages (within areas). Actions supporting basin-wide protection of watershed processes and function (e.g., regulatory updates and capital actions intended to support the aim of regulatory goals) should not be delayed and could be timed with other jurisdictions to achieve convergence and consistency, where possible.

  Regarding projects, although not rigidly proposed, general prioritization of larger, costlier, complex levee setback and floodplain restoration in the Cedar suggests these should start as soon as possible. In this respect many actions in the Cedar will commence before actions elsewhere. Although actions in mainstem and tributary areas will likely contribute benefits alone, actions in migratory areas should also be implemented, even given uncertainty about benefits from habitat-based actions in migratory areas (as opposed to direct predator control).

  In certain respects there are few habitat actions where timing is dependent upon timing of other actions (often due to the long lag time required before

full benefits – 10-25 years). At the same time, in order to conserve and improve VSP diversity, the timing of benefits to VSP diversity may be dependent upon the kind of action taken, more than the timing of the action itself. For example, restoring habitat diversity and function now in such a way to support adaptations that naturally would arise would be one way to conserve long term VSP diversity. On the other hand, limiting high abundance of hatchery strays to the spawning ground (especially in the Cedar River Basin) would offer a more timely approach to limiting risk to VSP diversity. Both may be necessary.

Sequencing for VSP effects is challenging. We believe the natural spawning components of both populations are at high risk of extinction due to trends of low abundance, productivity, and diversity. Only spatial distribution is of less concern at this time, in part because of our uncertainty about the role of spatial distribution as it contributes to VSP. At this time, actions are spatially limited relative to the known spatial distribution of the populations, based on preserving the core (and more highly productive) breeding groups. As well, at low abundance, a spatially distributed population may be at greater risk. Productivity and diversity underpin abundance and resilience of the population. Actions to address diversity as related to risk from hatchery influence could be sequenced first because theoretically they are most dependent upon management of human actions not population response. These issues are being addressed as part of the ongoing H-Integration process (see H-integration). Improvements to productivity should be sequenced next and addressing direct sources of mortality is one way to capture early benefits, in the face of great community ecology uncertainties. A low risk approach to productivity improvement is embodied in this 3-Year Work Plan. Otherwise sequencing is largely depicted as a series of related actions, where acquisition must come first before restoration.

- **H-Integration:** The TRT noted that integration of hatchery and habitat actions is a top priority for WRIA 8 and that Hatchery and Harvest actions were missing from the 2006 3-Year List. Since completion of the WRIA 8 Plan, several WRIA 8 partners are participating in regional H-integration effort led by the Co-managers to increase certainty that actions across the Hs are complementary. In 2006, the Co-managers offered guidance to the WRIAs in the form of 6 steps to accomplish H-integration. Part of the process to accomplish H-integration will include consideration of different management hypotheses using the All-H Analyzer (AHA) model. The WRIA 8 technical committee has received demonstration of the model and is prepared to work with the co-managers to explore a range of management alternatives to “achieve” VSP objectives based on hypothesized effects and interactions. Exploring alternatives to accomplish agreed-to VSP objectives will be a critical working step.

One VSP goal is to conserve and enhance the VSP diversity of the Cedar River population. An objective might be to limit population introgression from hatchery strays or enhance habitat forming processes and structure and function in such a way to provide in-river habitat conditions to which Cedar River Chinook would have naturally adapted. The exploration of these alternatives and consideration of benefits will lead to proposed actions. In advance of this, enhancement of fish passage at the Issaquah Hatchery intake weir represents the sole Hatchery capital project included in this 3-Year Work Plan at this time.

- **Cedar River HCP:** The TRT also notes that the WRIA 8 plan does not evaluate whether the flows identified in the Cedar River Habitat Conservation Plan are sufficient to support Chinook recovery. The WRIA partners are supportive of collaborative efforts to ensure that both Plans approved by NOAA are consistent and complementary.

- **Landsburg Fish Passage:** The TRT notes that the WRIA plan does not specifically state whether the passage of ad-clipped fish at the Landsburg Diversion Dam is consistent with ESA conservation objectives. As previously noted, the WRIA 8 Plan identifies hatchery contributions to spawning in the Cedar River as a significant risk to the diversity of the population. This concern applies throughout the Cedar River system, and we hope the regional H-integration effort will help to identify potential solutions.

VI. Conclusion and Policy Rationale

The conservation rationale, the practical rationale, and the Technical Recovery Team recommendations focus the policy direction to address the entire watershed, and associated landscape-level processes, through programmatic actions, while continuing to invest in site specific protection and restoration projects in core geographic areas in WRIA 8. By carefully considering the biological, practical, and TRT review, the 3-Year Work Plan emphasizes the most efficient and effective known options towards conservation of Chinook populations within WRIA 8.

The 3-Year Work Plan, as a derivative of the WRIA 8 Chinook Salmon Conservation Plan, rests on a solid scientific foundation. Implementation actions are developed from an understanding of the relationship between habitat and life-history expressions of Chinook salmon. Similar relationships exist between habitat and other salmon species. By implementing the actions on the 3-Year Work Plan, other salmon species should benefit from improvements in habitat. The level of certainty about the benefits to Chinook and other species if the

recovery plan actions are implemented is relatively good if conditions were held constant. With constantly changing habitat conditions, the need to understand the value and efficacy of ongoing investments and to capitalize on future management and policy decisions requires a framework to monitor results and to translate that to effective policy and re-evaluation of current recovery actions.

Epilogue

As part of our update of the WRIA 8 3-Year Work Plan, we reviewed projects included in the 2007 3-Year Work Plan to determine whether any projects could be removed because they had been completed, were now fully funded and ready for implementation (in 2008), or the opportunity had foreclosed. We have created additional lists of projects in the Excel file for completed projects and those that have been removed from the list due to a change in feasibility, such as land developed rather that acquired for protection.

WRIA 8 Reply to NOAA-TRT Review of WRIA 8 3-Year List (This document has been reviewed by the co-managers and the WRIA 8 Technical Committee)

The inclusion of Issaquah Creek restoration projects does not alter the plan strategy and WRIA prioritization for implementation. Among projects prioritized for funding with Salmon Recovery Funding Board (SRFB) and Puget Sound Acquisition and Restoration (PSAR) funds, project location priority is: 1) Cedar River; 2) Migratory areas; 3) Sammamish natural population -Bear/Cottage Tier 1 area; 4) Other, including Issaquah protection, Issaquah restoration, and other Tier 2 areas. We note that all naturally-produced and Issaquah Hatchery-produced Chinook salmon are currently included in the Puget Sound ESU based on a change in listing determination dated June 28, 2005. All geographic areas above represent important parts of the conservation geography of the Cedar and Sammamish populations, with hatchery production representing an indistinguishable component of the Sammamish population according to NOAA-Fisheries. Inclusion of the Issaquah Hatchery in the ESU affords potential population recovery alternatives that did not exist previously, when the Issaquah Hatchery was not included in the ESU, but the significance for recovery will be predicated on Hatchery conservation objectives and performance and relationship to the naturally-spawning Cedar River population.

Under the WRIA 8 habitat plan strategy, the Cedar River population is a recognized priority. Partly, current or future risk of not matching project actions to prioritized areas reflected in the Plan strategy stems from the dearth of funding applications for highly feasible and designed projects in priority areas, **not** deliberate departure from strategy. It is the focus and responsibility of the Implementation Committee to continue to work with jurisdictions to develop good projects, submit quality applications and target efforts in priority areas. Additional funding to support implementation capacity and effectiveness will be an important infusion in 2008.

As it is, the spotlighted project (Issaquah hatchery intake weir passage enhancement) is a feasibility study only, scoped in part to address population effects from the proposed action. The future "success" of fish passage improvement in Issaquah Creek for the Sammamish and Cedar River populations may be entirely dependent upon the identification and implementation of other management actions over the course of the next year, as part of H-integration.

EDT model output hypotheses suggest that although increased capacity in Issaquah Creek from restoration projects promotes an increase in abundance (model performance difference is 208 fish for all 25 actions evaluated), habitat productivity is little changed because restoration projects (and possibly protection projects) don't address the supply of fine sediments that limit incubation survival. Two projects (out of 25 currently modeled) account for 80% of the hypothesized benefits. In particular, the Hatchery intake weir project, in combination with all other proposed upstream protection and restoration actions, improves equilibrium abundance by 215% (from 41 to 88 modeled fish). Comprehensive restoration in the Lake Sammamish State Park is hypothesized to improve abundance by 226% mostly through survival benefits to pre-spawning migrants.

The addition of two other large restoration projects (Bush Lane and Pickering Place) accounts for 97% of the hypothesized benefit. Although these 4 projects, in particular, are hypothesized to result in Sammamish population benefits (primarily abundance), we conclude the primary limiting factor within Issaquah Creek is not substantially addressed by the four projects cited, nor the 21 others.

Additional improvement in Issaquah Creek Chinook productivity will likely be dependent upon treating sediment as a limiting factor as part of re-scoping existing projects or considering new projects and/or protection programs. Based on the hypothesized effect, restoration by itself is likely to pose low risk to the naturally-spawning WRIA 8 populations and also offer less benefit to Issaquah Creek Chinook salmon (than if sediment supply were treated). However, successful habitat restoration projects in Issaquah creek, although incremental, will also help achieve a key hatchery reform objective of increasing NOR abundance to increase the proportion of NORs in the Issaquah broodstock. This objective is part of H-integration objectives for the Sammamish population, and could be facilitated by increasing access to habitat miles above the Issaquah Hatchery intake weir. The strong caveat is that actual abundance of the Sammamish population and in Issaquah Creek specifically has been driven by hatchery production. Chinook salmon "passed" upstream of the hatchery have ranged in number from 1000-5000 fish, substantially more than the modeled benefit from restoration. Thus, the success of hatchery integration (to promote local adaptation and enhance VSP diversity) may be tempered or forestalled by limited restoration benefit and/or possible risk to the Cedar River population from straying effects.

Overall we believe it will be necessary to address concerns about straying to the Cedar River population through H-integration planning in 2007. The Cedar River composition of straying adults has ranged between 20-35% since mass marking was initiated and strays have mostly originated from the Issaquah hatchery as well as the UW and Grover's Creek hatcheries. Hatchery strays to WRIA 8 appear to have a high proclivity for smaller tributary use in the Cedar, such as Taylor and Walsh creeks. As well, the composition of hatchery strays passed above Landsburg on the Cedar River exceeds 50% (cumulative since 2003). Other tributaries in the watershed have a high proportion of strays (60-80%) (Kelsey, Bear, North, Little Bear creeks). Based on these observations, the affinity to discrete mainstem spawning locations by un-clipped Chinook in the Cedar River may suggest greater population structure than the apparent widespread distribution of strays suggests. Nevertheless, all parties are not in agreement regarding questions of possible straying effects. On the one hand, straying is regarded as a risk to Cedar River population diversity and productivity. One the other hand, straying is regarded as supporting population abundance and spatial distribution in the WRIA. The correct answer regarding significance of effect is "we do not know," and both may be correct. Formally, these issues require hypothesis testing. At the same time, given widespread habitat degradation and presence of catastrophic risks (e.g., Chittenden Locks ladder malfunctions, lethal migratory temperatures far from where strays and naturals mix it up), the greater risk may be having few fish at all to support population persistence.

Arguably, hatchery contributions on the spawning ground represents the need for both hatchery reform and habitat restoration. Increasing the proportion of NORs in the hatchery broodstock is an important HSRG goal. Reducing the contribution rate of hatchery strays and increasing resilience of the Cedar River population is achieved in part by increasing Cedar River abundance through actions that increase habitat capacity and productivity, although this would take considerably more time than hatchery or harvest management actions that are made annually, or as part of frequent budget cycles.

If strays do not represent a contribution to population persistence, then reduction of strays to the Cedar River may be desirable to mitigate risk to population diversity and perhaps intrinsic productivity or resilience. A reduction in the number of strays could arise (hypothetically) from individual or combinations of habitat, harvest and hatchery management actions, yet to be considered, that could operate in concert with Issaquah Hatchery intake weir passage and perhaps be dependent upon Issaquah passage. These include;

- improved Issaquah Creek homing of naturally spawning hatchery progeny through population integration for enhanced Issaquah Creek adaptations
- reduced hatchery program production (and on-going monitoring of WRIA 8-wide abundance to test for synchrony in spawner abundance),
- limited Issaquah upstream passage (100's instead of 1000's of spawners),
- selective pre-terminal or terminal (marine or freshwater) harvest of clipped fish,
- physical exclusion (at sorting weir) of straying ad-clipped fish from Cedar River,
- reduction in sources of direct mortality (e.g.; predation) on juvenile Cedar River fish (whether in-river or Lake Washington) through selective harvest – this would also benefit F1 hatchery progeny and therefore would not be relatively more beneficial for Cedar River naturally-spawning population.
- Accelerated improvement of Cedar River habitat capacity and productivity
- Migratory "habitat" improvements, including Lake Washington, ship canal, locks, and nearshore
- Cedar River broodstock production program for population supplementation to buffer potential effects from strays

There may be many other actions that could limit straying or effects from straying that could be considered as part of H-integration. As H-integration work has just commenced, we do not know what suite of H-actions or monitoring approaches will be selected that will support future implementation of the Issaquah hatchery intake weir project. The pros, cons, and synergistic effects of multiple actions should be evaluated for their likely, probable or possible population effects. And, once identified, certain approaches for monitoring outcomes can be recommended.

Three-Year Implementation Plan Narrative for WRIA 8 Attachments

Attachment A: Limiting Factor Key. The following are the primary limiting factors to Chinook survival. This key is to be used with the 3-Year Implementation List and Attachment B: WRIA 8 Programmatic Actions List.

Hydrology

Urbanization within WRIA 8 has drastically altered upland, stream, and lake hydrology in most areas. Urbanization in upland areas (e.g., vegetation clearing, soil compaction, road and building construction) increases the amount of impervious surface within watersheds which, in turn, influences the infiltration of precipitation and increases the amount and rate at which surface water runoff reaches aquatic areas (Dunne and Leopold 1978; Poff et al. 1997). In river and creek habitats, the increase in flow can cause significant modifications to instream habitat and channels often respond to these flow regime changes through an overall enlargement, specifically channel incision and widening (Dunne and Leopold 1978). The increase in flow can have far reaching implications by displacing natural structure (e.g., coarse sediment and wood), increasing rates of erosion and decreasing overall bank stability. The effects of higher stream flows are further exacerbated by poor riparian conditions and disconnection of the stream channel from the floodplain, through bank armoring, channel incision and encroachment.

Alternatively, stream hydrology can be altered by regulation of instream flows and water withdrawals (either surface water or groundwater), that typically reduce water levels. This can reduce the flows available to form habitat and connect with off-channel areas. Flow withdrawals, particularly in drier months, can reduce base flow levels and reduce available habitat areas for fish.

Historic changes from lowering the level of lakes Washington and Sammamish, as well as regulating lake levels to vary only by 2 feet, reduces shoreline habitat complexity by limiting seasonal wetland formation and other habitat-forming interactions at the water-land interface. The amount of water available in Lake Washington also affects operations of the Locks and dictates how water is used at the smolt flumes and for boat lockages, affecting the outmigration route, and hence survival, of juveniles.

Protection of hydrologic processes, including ground and surface water interactions, is hypothesized to directly support the survival of the egg incubation, fry colonization and prespawning migrant Chinook life stages. Other life stages are impacted by the role of hydrologic processes in maintaining cool stream temperatures, delivering spawning gravel, large woody debris, and nutrients, and providing access to off-channel habitat areas.

Water and Sediment Quality

Human-induced changes to water quality (e.g., industrial effluent, sewer overflows, urban runoff) can alter water temperatures, turbidity, oxygen content and nutrient and contaminant concentrations (Karr 1995; Paul and Meyer 2001). Water and sediment quality are degraded in the Ship Canal, Lake Union, and the Sammamish River, primarily in relation to water temperatures, although sediment quality is of concern in the Ship Canal and Lake Union as well. In general, these changes can affect the kinds, amounts, and activity of all aquatic organisms in streams (Welch et al. 1998). For salmonids in particular, poor water quality can harm them directly or indirectly through oxygen depletions, lethal temperature levels, acute and chronic toxicity, or prey reductions (Karr 1995; Bjornn and Reiser 1991).

Protection and restoration of water and sediment quality are hypothesized to primarily support the egg incubation life stage. Degradation of water quality (particularly increases in fine sediment and/or toxic chemicals) can significantly impact this life stage and drastically reduce productivity. Water quality improvements (particularly sediments) are also hypothesized to benefit the fry colonization and juvenile rearing life stages. In the Sammamish River, it is hypothesized that reduced temperatures would increase the survival of adult pre-spawning migrants.

There is currently considerable uncertainty regarding the causes of pre-spawning mortality that has been observed in coho and Chinook. As the incidence of pre-spawning mortality appears to be correlated with urban conditions, it is possible that runoff from urbanization is a causal factor. The potential role of water quality in pre-spawning mortality increases the need for actions that reduce water quality degradation.

Floodplain Connectivity

Streams and rivers are dynamic systems that constantly interact with their surrounding floodplain (Naiman and DeCamps 1990; May 1996; Morley 2000). Bank armoring, dredging, channel incision and urban encroachment effectively channelize the stream and severely limit interactions between the stream channel and the adjacent floodplain. This reduces the recruitment of coarse sediments and wood from floodplain areas, and limits materials available for habitat forming processes. Additionally, urban systems have lost riparian areas as a result of bank armoring, development of drainage infrastructure, and increased buildable area in the watershed (May 1996). Without the floodplain, streams and rivers lose habitat complexity, most notably off-channel and margin refuge habitats that provide resting areas for migrating fish and slow velocity areas during high-energy discharge events. The interactions of water bodies with their adjacent land is similarly important for the lakes and marine nearshore of

WRIA 8, which allows sediment and wood recruitment (discussed further under channel/shoreline complexity below).

Channel confinement has reduced floodplain connectivity and reduced the amount of pools, small cobbles, and large woody debris. It is hypothesized that this reduced connectivity reduces the survival of the fry colonization and juvenile rearing life stages. It is also hypothesized that this confinement reduces the success of the pre-spawning holding life stage.

Riparian Vegetation

Land development and encroachment into areas adjacent to streams has reduced the extent, composition, and integrity of riparian vegetation along all water bodies of WRIA 8. Mature, native plant communities, dominated by deciduous and coniferous trees, have been replaced by pavement, commercial/ industrial activities, landscaped residential yards and invasive-dominated shrub communities (e.g., Japanese knotweed and Himalayan blackberries). In addition, riparian zones have been isolated from aquatic environments by bank armoring. As a result, riparian function has been altered. The riparian zone along stream banks, as well as lake and marine shorelines, has little woody debris to contribute to the habitat of the adjacent aquatic area. Other riparian inputs, such as leaf litter and terrestrial insects, are reduced as well (Gregory et al. 1991; Morley et al. 2003; Sobocinski 2003). In creeks and rivers, degraded riparian vegetation combined with increased high flow events reduces bank stability and increases bank erosion (May 1996). These riparian alterations, combined with other factors, have reduced aquatic habitat complexity and the availability of prey resources for salmonids.

The protection and restoration of riparian function (including vegetation as well as overbank flows) is hypothesized to support the fry colonization and instream rearing life history stages. Other life stages (such as pre-spawning holding) are hypothesized to benefit from the connectivity of riparian areas with the mainstem channel, and sufficient flows to recruit wood and nutrients into the system.

Sediment Processes

Sediment recruitment, storage, and transport can be severely altered by altered hydrology, bank armoring, and reduced floodplain interactions. Depending on the flow dynamics, land uses, and underlying geology of the area, aquatic areas can suffer from either a lack of coarse sediments (e.g., gravel) or an abundance of fine sediments. Decreased gravel classes have been observed in urban streams as a result of altered sediment supplies and velocities (Finkenbine et al. 2000). Disconnecting stream, lake or marine nearshore areas from their adjacent floodplain/land interface has reduced sediment recruitment. Currents or flow velocities are responsible for distributing these substrates in the aquatic environment and without additional input, the system is left sediment deficient. In streams, increased stream gradients and flow velocities have further reduced retention of in-stream sediments (Pizzuto et al. 2000). These conditions reduce

the ability of aquatic habitats to create and maintain habitats. In freshwater areas, this reduces the amount of spawning substrates that are available for salmonids and the habitat complexity of the stream or lake area to benefit rearing juveniles. In salt water areas, there is a loss of shallow gravel substrate areas for juvenile refuge and feeding.

While coarse sediment recruitment is a problem with floodplain isolation, increased fine sediment is often a problem as well, especially in urbanized streams (Wydzga 1997). Fine sediment can be supplied through either upland construction or erosion of the shoreline. Channel bank erosion, in particular, is a major source of fine sediment, which is exacerbated by increasing high flows (Paul and Meyer 2001). While habitat problems associated with find sediments are mostly limited to creeks and rivers, the introduction of fine sediment has implications for the food web. Most benthic invertebrates cannot forage effectively in areas dominated by fine sediments (Collier 1995). Sedimentation can also cause egg mortality by filling intragravel spaces in redds, which reduces water flow or traps developed fry in the substrate. Suspended sediments also affect salmonid behavior (Newcombe and Jensen 1996).

Actions that protect and restore spawning gravels are hypothesized to benefit the spawning life stage, while actions that reduce fine sediments are hypothesized to benefit the egg incubation, fry colonization, and juvenile rearing life stages.

Shoreline Complexity

The combination of altered hydrology, loss of floodplain connection, degraded riparian communities, and altered sediment processes severely limits habitat forming processes and therefore, habitat complexity. This occurs in both lotic (streams and rivers) and lentic systems (lakes and the marine nearshore).. In lakes and the marine nearshore, there is an absence of high-quality, shallow water habitat with small substrates, in-water wood, overhanging vegetation, and variable edges at the land-water interface. Juveniles have poor rearing habitat that does not provide areas for foraging and refuge from predators, and the addition of over-water docks and piers may result in increased exposure to predators as migrating juveniles move to deeper water to go around these structures.. In addition, adult salmonids do not have areas to hold or rest while migrating.

Passage

Road crossings and other development activities have placed many creek channels in pipes and culverts (Finkenbine et al. 2000). Weirs and dams have also been installed in stream channels to reduce channel gradient and decrease stream velocity (May 1996). These structures were typically not designed to pass sediment or wood, and as a result, these materials are trapped in upstream areas, limiting their ability to contribute to downstream habitat formation. In addition, instream structures are often impassable to fish by creating outfall or velocity barriers (WDFW 1999), thereby restricting the amount of instream habitat

available to fish. Fish ladders and downstream flumes, such as at the Locks and Landsburg Dam (Cedar River), are passable to adults and juveniles but may have detrimental impacts through delayed migration or other sub-lethal effects (although none have been documented).

Fish passage blockages are hypothesized to reduce the spatial distribution and diversity of Chinook populations, and to reduce the productivity of juvenile rearing life stages. In WRIA 8, culvert blockages are generally on smaller tributaries and have a larger impact on other salmonids such as coho. With the addition of fish passage facilities at Landsburg Diversion Dam, it is hypothesized that the most significant passage issues in WRIA 8 are at the Ballard Locks. Direct adult mortality has been observed in 2004 and 2005. It is further hypothesized that juvenile survival would increase through improved effectiveness of the smolt slides and infrastructure improvements to increase the use of the smolt slides by migrating juveniles and increase the area of freshwater – saltwater mixing in the Ship Canal and Salmon Bay. Finally, passage improvements in a number of direct Puget Sound drainages that flow under the Burlington Northern Sante Fe Railroad would are hypothesized to increase the productivity of juvenile rearing in the nearshore of WRIA 8.

Attachment B: WRIA 8 Programmatic Actions List. This list is from the start-list of the WRIA 8 Chinook Conservation Plan, Volume I, Chapter 9. The start-list recommends the top actions for the next 10 years for Chinook recovery. This list is organized in the same geographic order as the 3-Year Implementation Plan. These programmatic cost estimates are above and beyond current dollars expended for these actions.

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Cedar			
Hydrology	Enlist help of builders practicing sustainable development to promote benefits of forest cover in protecting water quality. (C706, C707, C720, C722) 1 Basinwide	$5,000	C706, C707, C720, C722
Hydrology	Employ basinwide stewards to work with property owners, land trusts, and agencies in order to identify and secure forested, wetland, and riparian areas, and to encourage the best management practices for those held in private ownership. Encourage neighborhood and community protection associations to foster the ethic of voluntary stewardship and build bridges between property owners, agencies, and local governments. (C703, C716, C720, C721) 2 Basinwide	$15,000	C703, C716, C720, C721
Hydrology	Consistent with Growth Management Act, Renton and potential annexation areas should absorb most growth so that rural habitat resources can be protected; growth should be managed to minimize impacts on forest cover, water quality, and flows. (C1) 3 Within Urban Growth Area	$0	C1
Hydrology	In urban areas, protect remaining trees and encourage reforestation through street tree and urban forestry programs, tree protection regulations, landscaping incentives, and redevelopment. (C3) 4 Within Urban Growth Area	$10,000	C3
Hydrology	Protection of forest cover in Tier 1 and Tier 2 subareas is a high priority land use action, so that existing levels of forest cover are not further degraded. King County should strictly enforce the clearing restrictions for rural areas adopted in 10/04 as part of the critical areas ordinance update, pursue acquisition and incentives, and provide forest stewardship plans. Forest cover protections should account for site geology, soils, topography, and vegetation to maximize retention and infiltration. (C2) 5 Outside Urban Growth Area	$50,000	C2
Riparian Vegetation	Offer regulatory flexibility and incentives to encourage property owners to restore riparian function and remove impervious areas during redevelopment of public or private properties. (C6, C7) 6 Basinwide	$20,000	C6, C7
Riparian Vegetation	Expand outreach to streamside property owners about shoreline landscape design, maintenance, and streambank armoring alternatives. Convey through direct mailing of brochures (e.g., *Streamside Savvy, Going Native*); videos (*Natural Lawn Care*); shoreline homeowners kits given when home purchased; or,	$15,000	C701, C702, C709, C714, C716, C722

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	through workshops, including expansion of Natural Yard Care Program to include guidelines specific to shoreline residents. (C701, C702, C709, C714, C716, C722) 7 Basinwide		
Riparian Vegetation	Offer educational opportunities to landscape designers/contractors on riparian design/installation, alternatives to invasive species, and use of compost. (C705, C706, C707) 8 Basinwide	$5,000	C705, C706, C707
Riparian Vegetation	Encourage neighborhood garden tours of salmon-friendly gardens to help residents visualize alternatives to traditional, less eco-friendly landscape treatments. Offer neighborhood organizers assistance with publicity, signage, and volunteer docents. (C722, C707) 9 Basinwide	$10,000	C722, C707
Riparian Vegetation	Protection of remaining riparian vegetation within Urban Growth Area is high priority; encourage replanting of riparian vegetation through incentives, and strictly enforce aquatic buffers and limit variances where vegetation still exists in sensitive areas. (C5) 10 Within Urban Growth Area	$30,000	C5
Riparian Vegetation	Protect intact riparian buffers in Tier 1 and Tier 2 subareas through strict enforcement of buffer regulations, and offer incentives to restore degraded habitat buffers, recognizing that majority of riparian corridor is privately owned. Support King County forestry and agriculture programs including technical and financial assistance to landowners. Protection and restoration of riparian buffer on publicly owned lands is also a priority. (C5, C7) 13 Outside Urban Growth Area	$30,000	C5, C7
Floodplain Connectivity	Limit new development in floodplains and channel migration zones; develop and apply standards which minimize impacts to salmon. State and local transportation plans should minimize new road crossings. (C17, C18) 15 Basinwide	$0	C17, C18
Floodplain Connectivity	Do a demonstration project in publicly accessible area with riverfront property owner(s) willing to replace bulkheads, levees, or stream bank armoring with more ecologically friendly design. Project should contain elements doable by average property owner and illustrate costs and benefits. (C715) 16 Basinwide	$15,000	C715
Floodplain Connectivity	Conduct study to identify locations where large woody debris should be added to Cedar mainstem and to explore feasibility of passing large woody debris over the Landsburg dam. (C601, C260) 17 Basinwide	$30,000	C601, C260
Floodplain Connectivity	Increase public awareness about the value of large woody debris and native vegetation for flood protection, salmon habitat, and healthy streams. Convey through media (e.g., local papers, community newsletters); signage along publicly accessible “model” shoreline; brochures such as King County’s *Large Woody Debris and River Safety*; and other outreach venues such as festivals, local cable	$10,000	C716

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	channels, and the Cedar River Naturalists program. (C716) 18 Basinwide		
Water and Sediment Quality	Jurisdictions should adopt and enforce stormwater regulations and best management practices, consistent with Washington Department of Ecology's 2001 Stormwater Management Manual (or beyond), as part of the NPDES Phase 1 and Phase 2 permit requirements. These regulations and BMPs should reduce sediment inputs from bed-scouring high flows and from non-point sources, including roads, development, agriculture, and other activities. Water quality problems should be addressed through stormwater programs (including low impact development BMPs), current and future TMDLs, livestock programs, and upgrade of stormwater facilities (where possible). (C12) 32 Basinwide	$30,000	C12
Water and Sediment Quality	Explore options to improve stormwater management in developed areas, e.g., through development of regional stormwater facilities and natural drainage systems (e.g., SEA Streets). Promote stormwater best management practices related to parking lot cleaning, storm drain maintenance and road cleaning. (C13) 33 Basinwide	$30,000	C13
Water and Sediment Quality	State/local transportation departments should address runoff from all roads and retrofit existing roads as part of major maintenance, expansion or upgrade projects; road maintenance actions should be consistent with Tri-County guidelines. Stormwater impacts from major transportation projects (for new and expanded roadways proposed during the next ten years) should be addressed. Washington Department of Transportation should improve stormwater management on SR 169. (C14, C15, C16) 34 Basinwide	$20,000	C14, C15, C16
Water and Sediment Quality	Coordinate with local business community and non-profits to encourage the use of commercial car washes and carwash kits. Reprint and distribute water quality poster series depicting impacts of everyday practices: washing car, driving car without maintenance, leaving pet wastes unattended, and improperly using lawn chemicals. (C710) 35 Basinwide	$5,000	C710
Water and Sediment Quality	Publicize emergency call numbers for public to report water quality and quantity problems, non-permitted vegetation clearing, and non-permitted in-stream grading and wood removal incidents. (C713) 36 Basinwide	$5,000	C713
Hydrology	Work with Washington Department of Ecology and local health departments on regulations, incentives, and education related to impact of surface and groundwater withdrawals, including illegal withdrawals and exempt wells. Determine where illegal surface water withdrawals are occurring and follow-up with enforcement to ensure withdrawals do not continue. (C22) 37 Basinwide	$80,000	C22

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Hydrology	Work with City of Seattle, Cedar River Instream Flow Commission, and other stakeholders on policies, procedures and research related to effects of flow on habitat restoration. (C23) 38 Basinwide	$30,000	C23
Hydrology	Address flow issues through other regulations/programs including: critical aquifer recharge area protections, land use regulations, groundwater management plans, stormwater regulations, and best management practices for infiltration, low impact development, etc. (C19, C21, C20) 39 Basinwide	$20,000	C19, C21, C20
Hydrology	Promote availability of water conservation education and incentive programs (e.g., rebates for efficient toilets, free landscape irrigation audits) to decrease household, commercial, and landscaping irrigation water consumption throughout WRIA 8. (C24, C708) 40 Basinwide	$0	C24, C708
Cedar Tier II			
Floodplain Connectivity	Study where and how to add large woody debris to upper Cedar River mainstem and implement program. Must address dam safety in large woody debris placement. (C607) 41 Upper Cedar River Tier 2	$941,006	C607
Hydrology	Provide enhanced flows for pre-spawning migrants - Work with the City of Kent to establish instream flows that are protective of Chinook through their Habitat Conservation Plan process. Investigate and address other impacts to flows through stormwater management (e.g., low impact development), education and enforcement (e.g., for illegal and exempt withdrawals), etc. (C73, C75, C76, C80, C351) 42 Rock Creek Tier 2	$20,000	C73, C75, C76, C80, C351
Hydrology	Adopt and enforce stormwater regulations and best management practices to reduce stormwater flows that have increased bed scour and deposition of fine sediments. Flashy flows should be addressed through forest cover retention, low impact development techniques, erosion control during construction, improved stormwater management on new and existing roads. (C64) 44 Taylor Creek Tier 2	$10,000	C64
Migratory			
Water and Sediment Quality	Address water quality and high flow impacts from creeks and shoreline development through NPDES Phase 1 and Phase 2 permit updates, consistent with Washington Department of Ecology's 2001 Stormwater Management Manual, including low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into the lakes. Stormwater impacts from major transportation projects (for new and expanded roadways proposed during the next ten years) should be addressed. Encourage low impact development through regulations, incentives, education/training, and demonstration projects	$10,000	C39, N63, I72, I74

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	throughout subarea. (C39, N63, I72, I74) 9 Basinwide Lake Washington and Lake Sammamish		
Water and Sediment Quality	Protect and restore water quality and other ecological functions in tributaries to reduce effects of urbanization and reduce conditions which encourage cutthroat. Protect and restore forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools. (C38, N64, I75 C747, C748) 10 Basinwide Lake Washington and Lake Sammamish	$50,000	C38, N64, I75, C747, C748
Hydrology	Promote through design competitions and media coverage the use of “rain gardens” and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or “Street of Dreams” type event featuring these landscape /engineering treatments. (C748) 11 Basinwide Lake Washington and Lake Sammamish	$15,000	C719, C721, N716
Shoreline Complexity	Encourage salmon friendly shoreline design during new construction or redevelopment by offering incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines. Increase enforcement and address nonconforming structures over long run by requiring that major redevelopment projects meet current standards. (C27-29, N50, N52-53, I54-56) 1 Basinwide Lake Washington and Lake Sammamish		C27, C28, C29, N50, N52, N53, I54, I55, I56
Shoreline Complexity	Discourage construction of new bulkheads; offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation. (C30, N51, I52) 2 Basinwide Lake Washington and Lake Sammamish	$20,000	C30, N51, 152
Shoreline Complexity	Support joint effort by NOAA Fisheries and other agencies to develop dock/pier specifications to streamline federal/state/local permitting; encourage similar effort for bulkhead specifications. (C32-33, N55-56, I57, I66) 3 Basinwide Lake Washington and Lake Sammamish	$20,000	C32, C33, N55, N56, I57, I66
Shoreline Complexity	Promote value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal. Offer financial incentives for community docks in terms of reduced permit fees, loan fees/percentage rates, taxes, and permitting time, in addition to construction cost savings. (C734, C735) 4 Basinwide Lake Washington and Lake Sammamish	$25,000	C734, C735

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Shoreline Complexity	Develop workshop series specifically for lakeshore property owners on lakeside living: natural yard care, alternatives to vertical wall bulkheads, fish friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks. Related efforts include creation of a website to convey workshop material, an awareness campaign, "Build a Beach," to illuminate impact of bulkheads on development of sandy beaches. (C729, C730, C736) 5 Basinwide Lake Washington and Lake Sammamish	$50,000	C729, C730, C736
Shoreline Complexity	Coordinate with local businesses to sponsor a shoreline revegetation campaign, incorporating environmental stewardship as part of redevelopment occurring within Ship Canal area. Extend message (and sponsorship) through signage along shore, in-store promotions (at business's discretion), and media recognition. (M707) 15 Basinwide Lake Union, Ship Canal, and Locks	$20,000	M707
Shoreline Complexity	Bluffs on Magnolia and Discovery Park in Seattle are only ones in WRIA 8 that are not armored by the railroad and have some unarmored locations (publicly and privately owned). Prohibit bulkheads or any other form of armoring and development at these locations through Seattle's critical areas ordinance and Shoreline Master Program. (M1) 16 Basinwide Estuary and Nearshore	$0	M1
Shoreline Complexity	· Support King County-funded sediment source study to: 1) establish where feeder bluffs were prior to the railroad, and 2) qualitatively assess rates of erosion and sediment contribution of those bluffs. Expect study completion by 3/05. 17 Based on study results:	$0	M2, M3
Shoreline Complexity	Ø Map those bluffs that are most critical to protect (to preserve future opportunities to restore them to natural function), and protect them from future development through critical areas ordinance and/or Shoreline Master Program updates or acquisition. Note that steep slopes that are already developed need to be protected from erosion as a health and safety issue. 18 Basinwide Estuary and Nearshore	$0	M2, M3
Shoreline Complexity	Ø Do pilot projects to open up certain slide prone areas (e.g., by building trestles under railroad), so that slides make it into the nearshore and/or investigate appropriateness of a beach nourishment program. The experimental nature of a beach nourishment program requires a comprehensive and robust adaptive management and monitoring system. (M2, M3) 18b Basinwide Estuary and Nearshore	$10,000	M2, M3
Shoreline Complexity	Create an education campaign for property owners along bluff as well as general public: Have you fed your beach today? Define feeder bluffs, challenge the notion that <u>all</u> erosion is a bad thing. (M724) 19 Basinwide Estuary and Nearshore	$30,000	M724

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Shoreline Complexity	Protect remaining nearshore vegetation (on low or high bluffs) through regulation and/or acquisition. Regulatory tools to protect vegetation and prevent further development on and near top of bluffs, include: steep slope ordinances, bald eagle protection ordinances, critical areas ordinances, and clearing ordinances. (M7) 20 Basinwide Estuary and Nearshore	$10,000	M7
Shoreline Complexity	Offer incentives to encourage bulkhead removal and revegetation along shoreline, including: allow regulatory flexibility during redevelopment, provide expertise (e.g., templates for shoreline planting plan, bulkhead design); expedite permitting at local, state and federal levels. (M8) 21 Basinwide Estuary and Nearshore	$20,000	M8
Shoreline Complexity	· For areas with existing residential, commercial, and industrial development west of the railroad (e.g. Nakeeta Beach, Point Wells, Richmond Beach): - Prohibit new development, at least in areas designated as conservancy. - During redevelopment, reduce overall impacts to nearshore, e.g., limit additional riprap to that required to protect structures, require riparian revegetation, avoid construction in intertidal zone, use smallest feasible footprint for structures, redevelop industrial sites into less intensive uses. - Promote pilot projects to better understand impacts of bank hardening in estuary and nearshore. As site specific projects are pursued "to remove structures, fill, and bulkheads" through fee simple purchase of parcels, address any regulatory or programmatic actions in order to expedite these projects. (M4) 22 Basinwide Estuary and Nearshore	$20,000	M4
Shoreline Complexity	Offer shoreline property owners a series of shoreline design workshops on: shoreline planting design/ noxious weed management; slope stabilization and erosion control using vegetation; natural yard care; porous paving options; alternatives to vertical wall bulkheads; salmon friendly dock design; and environmentally friendly methods of maintaining boats, docks, and decks. Offer professional workshops to marine contractors and design professionals on more environmentally friendly shoreline design. (M714, M716, M718, M719) 24 Basinwide Estuary and Nearshore	$50,000	M714, M716, M718, M719
Shoreline Complexity	Prohibit new residential overwater structures. For new public facilities (e.g., ferry docks), incorporate salmon-friendly design features and mitigate for unavoidable impacts. Retrofit existing overwater structures with salmon friendly design features. Where applicant meets guidelines for marine overwater structures, offer expedited local/state/federal permitting (similar to concept being promoted for Lake Washington overwater structures by NOAA Fisheries and other agencies). (M10, M11, M13) 25 Basinwide Estuary and Nearshore	$15,000	M10, M1, M13

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Shoreline Complexity	Remove overwater structures and pilings when possible; increase interpretive signage and media exposure at areas where structures are removed such as at Edmonds parks. Offer incentives to build community docks to replace individual docks in Salmon Bay. (M11) 26 Basinwide Estuary and Nearshore	$20,000	M11
Shoreline Complexity	Expand outreach about value of eelgrass beds as juvenile source of food and habitat – and the negative effects that docks, overwater structures, and bulkheads have on the eelgrass. Encourage combined docks or more salmon friendly designs that impede less sediment and let more light into water; involve community and youth in eelgrass replantings and monitoring studies. (M714, M716, M721) 27 Basinwide Estuary and Nearshore	$20,000	M714, M716, M721
Shoreline Complexity	Protect stream mouths and wetlands from further degradation through Shoreline Master Programs and critical areas ordinances. Once stream mouths and wetlands are restored, protect from impacts from development through buffer requirements and stormwater management programs. (M14, M17, M18) 28 Basinwide Estuary and Nearshore	$40,000	M14, M17, M18
Shoreline Complexity	Combine above restoration efforts with increased interpretive signage and video documentation for airing on government cable TV; make copies available to neighborhood and stewardship associations and encourage their participation in hands-on projects. 29e Basinwide Estuary and Nearshore	$20,000	MISSING
Shoreline Complexity	Work with real estate community to help promote value of creek mouths to both property owners, environment, and shoreline community; encourage property owners to help restore them. Enlist help of neighborhood stewardship associations and Seattle Public Utility's Creek Stewardship program. (M720) 29f Basinwide Estuary and Nearshore	$30,000	M720
Shoreline Complexity	Address stormwater impacts (water quality and flows) throughout sub-area and from development near tops of bluffs, by: revising Phase 1 and 2 NPDES permits (consistent with Washington Department of Ecology's 2001 Stormwater Management Manual), requiring or encouraging low impact development, retrofitting existing developments using natural drainage systems (e.g., SEAStreets). (M19) 30 Basinwide Estuary and Nearshore	$30,000	M19
Shoreline Complexity	Determine extent to which residential structures along nearshore are on septic systems; determine if these systems are operating properly and if not require that they be fixed. Require that septic systems be inspected at time of sale. (M20) 31 Basinwide Estuary and Nearshore	$10,000	M20
Shoreline Complexity	Discourage or prohibit any further filling and dredging in nearshore except for essential public facilities, and where associated with shoreline restoration projects. (M21) 32 Basinwide Estuary and Nearshore	$10,000	M21

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Shoreline Complexity	Promote boater/sea plane education campaign in order to improve and protect water quality compromised by fuel or toxic compounds from boat repairs, boat and sea plane maintenance. Carry out through signage at marinas, sea plane docks, boat yards, as well as messaging sent with boat/plane license registration. (M728) 33 Basinwide Estuary and Nearshore	$5,000	M728
Shoreline Complexity	Educate and support businesses, property management companies, and homeowners associations on stormwater best management practices, specifically related to parking lot cleaning, storm drain maintenance and road cleaning. (M730) 34 Basinwide Estuary and Nearshore	$5,000	M730
Shoreline Complexity	Train groundskeepers and property management companies about water polluting effects of landscape practices. Employ the "pride in workmanship" strategy, by placing signs that list who maintains the landscapes and parking lots along shorelines and the maintenance practices that they employ. (M729) 35 Basinwide Estuary and Nearshore	$25,000	M729
Passage	Continue to work on improving conditions at the Locks to improve juvenile Chinook outmigration. Actions could include: Take advantage of enormous outreach potential at the Locks by working with the Corp of Engineers to expand or enhance educational displays. Include information about ongoing and proposed WRIA 8 conservation efforts being both taken at the Locks and throughout the watershed, as well as actions that citizens can take to improve salmon habitat at home. 13d Basinwide Lake Union, Ship Canal, and Locks	$10,000	MISSING
North Lake Washington			
Hydrology	Protect headwater wetlands, seeps, and groundwater recharge areas through critical areas ordinances, critical aquifer recharge area protections (CARAs), incentives, and acquisition. Support with appropriate public outreach to convey reasons behind regulations to protect groundwater sources, consequences of not employing them, and ultimate benefits to environment and people. (N1, N722, N723) 1 Basinwide Bear/Cottage Lake/Cold Creeks	$30,000	N1, N722, N723
Hydrology	Determine source of the Cold Creek groundwater springs in Cottage Lake Creek and develop protective measures to adequately protect them. Cold Creek headwaters cross the Urban Growth Boundary; growth within Woodinville should be managed to minimize impacts. (N4) 2 Basinwide Bear/Cottage Lake/Cold Creeks	$645,231	N4
Hydrology	Expand groundwater protection outreach messages to include the relationship between ground and surface water and inter-connectedness of all hydrologic systems. Include messages in water utility billings, newspaper articles, and school curricula; explore opportunities to partner with	$7,000	N722, N723, N724

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	business such as local bottled water company. (N722, N723, N724) 3 Basinwide Bear/Cottage Lake/Cold Creeks		
Hydrology	Continue approach taken in King County during past decade to protect forest cover and riparian buffers, including: enforcing existing regulations, providing a range of incentives and a basin steward working with streamside landowners, and providing forest stewardship plans. Support Snohomish County's incentive programs such as Transfer of Development Rights for farmlands and Reduced Drainage Discharge Demonstration Program. Properties protected through acquisition, easements, etc. must be maintained over long term. (N7, N701, N702, N704) 4 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	N7, N701, N702, N704
Hydrology	Promote low impact development throughout Tier 1 and 2 subareas, to accommodate additional growth in urban and rural areas, while protecting ecological functions. Enlist help of builders practicing sustainable development to promote benefits of forest cover in protecting water quality. Provide recognition through media and professional awards to those using pervious paving, grass/green roofs, and other low impact development techniques. Work with the Snohomish Sustainable Development Task Force and other public and private stakeholders to plan and implement low impact development techniques. (N6, N91-93, N719, N720, N721) 5 Basinwide Bear/Cottage Lake/Cold Creeks	$5,000	N6, N91-N93, N719, N720, N721
Hydrology	Increase outreach concerning the benefits of trees and basinwide forest coverage to protect water quality and maintain instream flows. Coordinate with nurseries, home improvement centers, and arborists to develop a marketing campaign promoting the benefit of trees to salmon and watershed health. 6 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	MISSING
Hydrology	Employ basinwide stewards to work with property owners, land trusts, and agencies in order to identify and secure forested, wetland, and riparian areas. Encourage neighborhood and community protection associations that foster the ethic of voluntary stewardship, enlist community support to purchase forest tracts and build bridges between property owners, agencies, and local governments. (N702, N704) 7 Basinwide Bear/Cottage Lake/Cold Creeks	$30,000	N702, N704
Hydrology	Continue to absorb majority of growth in urban areas, while protecting and restoring forest and promoting low impact development, to maintain and improve water quality and flows. (N5) 8 Within Urban Growth Area Bear/Cottage Lake/Cold Creeks	$0	N5

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Hydrology	There is considerable growth pressure in Bear/Cottage Lake creeks outside the Urban Growth Area (UGA), as urban-type development and related infrastructure continue to expand (e.g., Maltby UGA, Redmond Ridge UPD, city parks). Jurisdictions should not move the UGA boundary unless such change is beneficial to salmon; they should encourage low impact development, clustering, low density livestock or garden enterprises with appropriate best management practices, and other measures to protect environmental functions in rural areas. It may be necessary to acquire high quality rural properties to insure their long-term protection. (N6) 10 Outside Urban Growth Area Bear/Cottage Lake/Cold Creeks	$30,000	N6
Hydrology	Adopt and strictly enforce stream/wetland buffers and forest cover protections through King and Snohomish counties' critical areas ordinance updates. Forest cover protections should account for site geology, soils, topography, and vegetation to maximize retention and infiltration. (N10) 11 Outside Urban Growth Area Bear/Cottage Lake/Cold Creeks	$50,000	N10
Riparian Vegetation	Implement regulations and incentives to protect and restore riparian buffers, through critical areas ordinances and Shoreline Master Program updates; limit impacts of trails and other facilities in buffers. Implement riparian restoration by streamside landowners through King County Livestock Program, farm plans, and cost share. (N12) 13 Basinwide Bear/Cottage Lake/Cold Creeks	$40,000	N12
Riparian Vegetation	Expand outreach to streamside property owners about shoreline landscape design, maintenance, and streambank armoring alternatives, through direct mail brochures, videos, shoreline homeowners kits (including expansion of "Streamside Living Welcome Wagon"), and workshops (including expansion of Natural Yard Care Program). (N703, N707, N708, N709, N725) 14 Basinwide Bear/Cottage Lake/Cold Creeks	$15,000	N703, N707, N708, N709, N725
Riparian Vegetation	Offer educational opportunities to landscape designers/contractors on riparian design/installation, alternative to invasive species, and promote use of compost. (N714, N721) 15 Basinwide Bear/Cottage Lake/Cold Creeks	$5,000	N714, N721
Floodplain Connectivity	Limit new development in floodplains; develop and apply standards which minimize impacts to salmon. Minimize number and width of new roads through transportation planning and implementation. (N15) 19 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	N15
Floodplain Connectivity	Increase public awareness about the value of large woody debris and native vegetation for flood protection, salmon habitat, and healthy streams. Convey through media (e.g., local papers, community newsletters); signage along publicly accessible "model" shoreline; brochures such as King County's *Large Woody Debris and River Safety*; and	$10,000	N708

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	other outreach venues such as festivals and local cable channels. (N708) 20 Basinwide Bear/Cottage Lake/Cold Creeks		
Water and Sediment Quality	Identify sources and adopt source control of fine sediments and metals in mainstems and tributaries (e.g., from new construction, sand on roads, farms) through stormwater management and clearing and grading ordinances. Jurisdictions should adopt and enforce regulations and best management practices consistent with Washington Department of Ecology's 2001 Stormwater Management Manual (or beyond), as part of the NPDES Phase 1 and Phase 2 permit requirements. Water quality problems should be addressed through stormwater programs (including low impact development BMPs), current and future TMDLs, livestock management programs, and upgrade of stormwater facilities (where possible). (N18) 27 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	N18
Water and Sediment Quality	Work with Washington Department of Transportation and local jurisdictions to pursue opportunities to retrofit existing roadways with stormwater best management practices to improve water quality and flows. Stormwater impacts from major transportation projects (for new and expanded roadways proposed during the next ten years) should also be addressed. (N21-22) 28 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	N21, N22
Water and Sediment Quality	Coordinate with local business community and non-profits to encourage the use of commercial car washes and carwash kits. Reprint and distribute water quality poster series depicting impacts of everyday practices: washing car, driving car without maintenance, leaving pet wastes unattended, and improperly using lawn chemicals. Promote stormwater best management practices related to parking lot cleaning, storm drain maintenance, and road cleaning. (N726, N727, N729, N731) 29 Basinwide Bear/Cottage Lake/Cold Creeks	$5,000	N726, N727, N729, N731
Water and Sediment Quality	Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or "Street of Dreams" type event featuring these landscape /engineering treatments. (N720, N721) 30 Basinwide Bear/Cottage Lake/Cold Creeks	$15,000	N720, N721
Water and Sediment Quality	Publicize emergency call numbers for public to report water quality and quantity problems, non-permitted vegetation clearing, and non-permitted in-stream grading, and wood removal incidents. (N731) 31 Basinwide Bear/Cottage Lake/Cold Creeks	$5,000	N731

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Water and Sediment Quality	Commercial/industrial areas should be investigated for water quality and runoff issues and potential stormwater facilities planned and built. (N23) 32 Within UGA Bear/Cottage Lake/Cold Creeks	$10,000	N23
Water and Sediment Quality	Jurisdictions should implement and enforce livestock ordinances, making highest priority those areas that are most susceptible due to fine soils. Work with farmers to adopt and implement farm plans to address water quality and habitat management. Coordinate with other stewardship and education programs, (e.g., Horses for Clean Water). (N19, N702, N713) 34 Outside Urban Growth Area Bear/Cottage Lake/Cold Creeks	$20,000	N19, N702, N713
Hydrology	Adopt stormwater provisions to address high flows, flashiness, and protection of base flows, including forest retention and low impact development best management practices, to improve infiltration. (N20, N27) 36 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	N20, N27
Hydrology	Work with Washington Department of Ecology, local health departments, and water suppliers on regulations, incentives, and education related to impact of surface and groundwater withdrawals, including municipal water withdrawals (e.g., City of Redmond), illegal withdrawals, and exempt wells on flow conditions throughout basin. Determine where illegal surface water withdrawals are occurring and follow-up with enforcement to ensure withdrawals do not continue. (N25-26) 37 Basinwide Bear/Cottage Lake/Cold Creeks	$80,000	N25, N26
Hydrology	Increase outreach about illegal water withdrawals, including information about exempt wells (who and what purposes qualify), and maximum quantities that may be withdrawn per day. Clarify distinction between withdrawals taken from wells and diversions taken from the river without a water rights permit. Create citizen-based watchdog groups to watch for people drawing directly from creeks and streams. 38 Basinwide Bear/Cottage Lake/Cold Creeks	$20,000	N MISSING
Hydrology	Promote availability of water conservation education and incentive programs (e.g., rebates for efficient toilets, free landscape irrigation audits) to decrease household, commercial, and landscaping irrigation water consumption throughout WRIA 8. (N28, N723) 39 Basinwide Bear/Cottage Lake/Cold Creeks	$0	N28, N723
Water and Sediment Quality	Address water quality issues, including temperature and pesticides/herbicides, through stormwater regulations (including NPDES permits), best management practices (including low impact development), education, and incentives targeted at agricultural, commercial, industrial, and residential landowners. (N34-37) 40 Basinwide Sammamish	$10,000	N34, N37

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Hydrology	Work with Washington Department of Ecology, local health departments, and water suppliers to address municipal water withdrawals, illegal withdrawals, exempt wells that impact Sammamish River flows and related high temperatures. Research potential for reclaimed water facilities, shifting of municipal water supply sources to maximize summer flows, and extent of impacts from agricultural, commercial, and industrial sectors. (N29-30, N33) 41	$0	N29, N30, N33
Water and Sediment Quality	Bolster water conservation outreach in Sammamish watershed to increase and maintain summer base flows and reduce summer water temperatures. Carry out through incentive programs (e.g., rebates for efficient appliances, toilets, free landscape irrigation audits); classes on native drought-tolerant landscaping; and waterless carwash promotions. (N733, N734) 42 Basinwide Sammamish	$0	N733, N734
Riparian Vegetation	Encourage bank regrading and revegetation of riparian buffers (on mainstem and tributaries) during new construction and redevelopment in exchange for regulatory flexibility and incentives, such as providing expertise, expediting permitting, and tax breaks. (N42-43) 43 Basinwide Sammamish	$10,000	N42, N43
Riparian Vegetation	Given the high public use of the Sammamish River trail, restoration projects on the Sammamish River are highly visible and provide good public outreach opportunities. Enhance interpretive efforts on projects and encourage media coverage. Continue to use citizen volunteers to assist in restoration and maintenance of project sites. (N710, N711) 46 Basinwide Sammamish	$20,000	N710, N711
Riparian Vegetation	Encourage neighborhood garden tours of salmon friendly gardens to help residents visualize alternatives to traditional, less eco-friendly landscape treatments. Integrate native plant salvage opportunities into Naturescaping classes, allowing class participants to take home native plants for immediate use both within and surrounding sensitive areas. (N716) 53 Basinwide Sammamish	$10,000	N716
North Lake Washington Tier II			
Hydrology	Tremendous growth pressure exists in Little Bear subarea. Jurisdictions should not move the Urban Growth Area (UGA) boundary, unless such change is beneficial to salmon. Jurisdictions should protect remaining watershed function by managing any additional growth in rural areas through incentives and regulations for forest retention, low impact development, clustering to protect natural areas, transferable development rights, etc. and acquisition where regulation and incentives do not provide sufficient protection. (N67) 55 Little Bear Tier 2	$20,000	N67

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Hydrology	Inadequate base flows, flooding, and flashy hydrology pose serious problems in North Creek. Address these through stormwater management (e.g., improved retention of high flows and increased infiltration), improved information about and enforcement of surface and groundwater withdrawals, TMDL implementation, more aggressive water conservation, etc. (N107) 61 North Creek Tier 2	$10,000	N107
Hydrology	Protect remaining forest cover and wetlands through critical areas ordinances, stormwater regulations and best management practices, incentives (e.g., tax breaks, expedited permitting), and acquisition where regulation and incentives are not sufficient protection. There are undeveloped forested areas and wetlands in the following reaches: Lower North reaches 4, 3, 2 and Upper North reaches 10, 9, 6, 7. (Note: Reaches listed in EDT priority order). (N71, N376, N372, N370, N371, N396, N393, N385, N389) 62 North Creek Tier 2	$10,000	N71, N376, N372, N370, N371, N396, N393, N385, N389
Issaquah			
Hydrology	Support Issaquah's proposed critical aquifer recharge area (CARA) provisions that incorporate groundwater quality protections in well head capture zones and a broader protection area where infiltration will be required for groundwater recharge. (I19) 1 Within Urban Growth Area	$0	I19
Hydrology	Protect headwaters and groundwater through variety of tools: wetland buffers, CARA protections, stormwater infiltration regulations (including low impact development), forest clearing restrictions, recommendations in King County's 2003 *Taylor Mountain Forest Stewardship Plan* and forest stewardship plans. (I16-17) 3 Outside Urban Growth Area	$20,000	I16, I17
Hydrology	Protect existing natural flow regime in the headwaters areas of Carey and Holder creeks, which are in the Tiger Mountain State Forest and Taylor Mountain County Forest vicinity, by acquiring forest property, development rights/conservation easements. Provide enhanced incentives to retain and plant forest area environments (Carey Creek Reaches 3, 4 and Holder Creek Reach 3). (I5-7) 4 Outside Urban Growth Area	$0	I5, I6, I7
Hydrology	Encourage low impact development (including low density livestock or garden enterprises) through regulations, incentives, and education/training. Support basin liaison position to set up training and information sharing among planners, developers, and scientists about hands-on aspects of low impact development best management practices, including marketing, permitting, and technical issues. (I3, I715, I719, I720, I722) 5 Basinwide	$30,000	I3, I715, I719, I720, I722

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
Hydrology	Offer existing and new incentives to continue to protect and restore conditions beyond those which are protected through regulations. Incentives include current use taxation programs (e.g., King County's Public Benefit Rating System and Timberland Program), transferable development rights programs. (I5, I701) 6 Basinwide	$20,000	I5, I701
Hydrology	Sponsor design competitions for innovative low impact development features, including clustered development, greater forest cover, reduced impervious pavement, green roofs. Combine a home/garden tour or "Street of Dreams" type event featuring these landscape/engineering treatments. (I720, I722) 7 Basinwide	$20,000	I720, I722
Hydrology	Employ basinwide stewards and farm planners/livestock stewards to work with property owners, land trusts, and agencies in order to identify and secure forested, wetland, and riparian areas, and to encourage the best management practices for those held in private ownership. (I701, I702) 8 Basinwide	$25,000	I701, I702
Hydrology	Encourage neighborhood and community protection associations that foster the ethic of voluntary stewardship; gain community support for forest land acquisition; and build bridges between property owners, agencies, and local governments. Continue the Issaquah Action Basin Action Team and expand to include more community representation from East Fork communities and the Upper Issaquah Basin. (I711, I716, I717) 9 Basinwide	$15,000	I711, I716, I717
Hydrology	Consistent with the Growth Management Act, Issaquah will continue to absorb most new residential, commercial, industrial growth. Control new development to minimize impacts on water quality, instream flows, and riparian buffers by encouraging low impact development through 3-tiered approach: 1) revise existing codes; 2) provide technical information to developers; 3) promote demonstration projects through incentives, technical assistance. (I12-13) 10 Within Urban Growth Area	$0	I12, I13
Hydrology	Promote comprehensive approach taken in Bear Creek basin during past decade to include: strictly enforced regulations (e.g., clearing restrictions, riparian buffers, and stewardship plans in King County's updated critical areas ordinance), King County basin steward doing targeted outreach to streamside landowners, and a range of incentives (i.e., acquisition, PBRS program, conservation easements). Forest cover protections should account for site geology, soils, topography, and vegetation to maximize retention and infiltration. (I2, I4, I727) 12 Outside Urban Growth Area	$50,000	I2, I4, I727
Riparian Vegetation	Protect riparian buffers through critical areas ordinances, offer incentives (Public Benefit Rating System, easements) for private property owners to protect buffers and/or revegetate and remove channel confinement. Protect and restore riparian corridors by implementing	$20,000	I28, I30

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	required fencing/set asides and options for planting and cost share provided by the King County Livestock Program. (I28, I30) 14 Basinwide		
Riparian Vegetation	Continue and expand Creekside Landowner Assistance Program including classes, technical and financial assistance in shoreline landscape design, maintenance, and streambank armoring alternatives. In addition to workshops, convey through direct mailing of brochures, videos, and expansion of "Streamside Living Welcome Wagon" where residents welcome new home owners and provide information concerning salmon-friendly yard care, etc. (I702, I704, I709) 15 Basinwide	$15,000	I702, I704, I709
Riparian Vegetation	Offer educational opportunities to landscape designers/contractors on riparian design/installation, alternatives to invasive species, and use of compost. (I713) 16 Basinwide	$5,000	I713
Riparian Vegetation	Continue to tighten regulations affecting riparian buffers, including more restricted application of buffer averaging, fewer allowable uses in buffers. However, nonconforming uses will continue to be a great challenge; in order to decrease level of nonconformity over the long term, jurisdictions should encourage/require that development come into conformity, depending on degree of redevelopment. (I25-26) 17 Within Urban Growth Area	$0	I25, I26
Floodplain Connectivity	Limit new development and roads in floodplains; develop and apply standards which minimize impacts to salmon. Planning for new roads, and maintenance and retrofitting of existing roads, should minimize impacts on floodplains and water quality. (I38-40, I49) 18 Basinwide	$30,000	I38, I39, I40, I49
Floodplain Connectivity	Increase public awareness of the value of large woody debris and vegetated areas for flood protection, salmon protection and healthy streams in print (e.g., local papers, community newsletters, signage) and other means (e.g., Issaquah Salmon Days, Sammamish Watershed Festival activities, local cable channels, hatchery docent presentations). (I705) 19 Basinwide	$7,000	I705
Floodplain Connectivity	Consider flexibility in prescriptive buffer width standards in exchange for stream habitat and buffer enhancement during redevelopment. However, limit buffer width reductions for new development because a key issue for Issaquah Creek is encroachment into floodplain and channel confinement, and revegetation does not improve this riparian function. (I29) 20 Within Urban Growth Area	$0	I29
Water and Sediment Quality	Identify water quality problems and address through stormwater management programs (including low impact development best management practices), current and future TMDLs, livestock management programs, upgrade of stormwater facilities (where possible), and retrofit of existing roadways to improve water quality and flows (e.g., SR-18, I-90). Jurisdictions should adopt and enforce regulations and best management practices consistent	$20,000	I31, I32, I36, I41

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	with Washington Department of Ecology's 2001 Stormwater Management Manual (or beyond), as part of the NPDES Phase 1 and Phase 2 permit requirements. (I31-32, I36, I41) 34 Basinwide		
Water and Sediment Quality	King County should implement and enforce livestock ordinance, making highest priority those areas that are most susceptible due to fine soils. Work with farmers to adopt and implement farm plans which address water quality and fish and wildlife habitat management and restoration. Coordinate with other stewardship and education programs, e.g., Horses for Clean Water and Backcountry Horsemen. (I24, I712) 35 Basinwide	$30,000	I712
Water and Sediment Quality	Run Natural Yard Care Neighborhoods Program and other landscaping education opportunities in communities in the Issaquah Basin. Increase visitation of basin residents to Pickering Farm Community Teaching Garden. (I723) 36 Basinwide	$7,000	I723
Water and Sediment Quality	Publicize emergency call numbers for public to report water quality and quantity problems, non-permitted vegetation clearing, and non-permitted instream grading and wood removal incidents. (I729) 37 Basinwide	$5,000	I729
Water and Sediment Quality	Coordinate with local business community and non-profits to encourage the use of commercial car washes and carwash kits. Reprint and distribute water quality poster series depicting impacts of everyday practices: washing car, driving car without maintenance, leaving pet wastes unattended, and improperly using lawn chemicals. (I724) 38 Basinwide	$5,000	I724
Water and Sediment Quality	Educate and support businesses, property management companies and homeowners associations on stormwater best management practices, specifically related to parking lot cleaning, storm drain maintenance, and road cleaning. (I725) 39 Basinwide	$5,000	I725
Hydrology	Work with Washington Department of Ecology, local health departments, and water suppliers on regulations, incentives, and education related to impact of municipal water withdrawals, illegal withdrawals, exempt wells on flow conditions throughout basin. Determine where illegal surface water withdrawals are occurring and follow-up with enforcement to ensure withdrawals do not continue. Develop public information about exempt wells, differences between water drawn from wells versus water diverted from streams without water rights permits, and support enforcement through development of citizen-based watchdog groups. (I44-46) 40 Basinwide	$80,000	I44, I45, I46
Hydrology	Adopt and enforce stormwater provisions to address high flows and protection of base flows, including forest retention and low impact development best management practices. Encourage rainwater harvesting and graywater capturing for reuse in landscaping irrigation through	$20,000	I47, I723, I728

Primary Limiting Factors Addressed	*Start-list Programmatic Recommendations*	*High Cost Estimate*	*WRIA 8 Plan List Code*
	demonstration projects, workshops and educational materials. (I47, I723, I728) 41 Basinwide		
Hydrology	Continue and/or extend availability of water conservation incentive programs (such as rebates for efficient toilets, appliances, free indoor conservation kits, free landscape irrigation audits); outreach on rainwater harvesting, and graywater capturing for reuse in landscape irrigation. Support conservation efforts within the Cascade Water Alliance and work to coordinate the various water policy and decision makers. (I721, I728) 42 Basinwide	$0	I721, I728

2008 Three-Year Work Plan - WRIA 8 Watershed Implementation Priorities

Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secondary Species Benefiting	2008 Year 1 Scope	2008 Year 1 Cost	2009 Year 2 Scope	2009 Year 2 Cost	2010 Year 3 Scope	2010 Year 3 Cost	Likely end date	For Habitat projects: Acquisition	Restoration type, if applicable	Location within watershed	Performance
Adaptive Management																							
Non-capital needs for Adaptive Management and Grant Coordination																							
Lead Entity Coordination	Tier 1	*Lead entity coordination**	*Lead entity*	***$225,000***	*$0*	*$225,000*					Chinook		*Staffing (1 FTE)*	*$75,000*	*Staffing (1 FTE)*	*$75,000*	*Staffing (1 FTE)*	*$75,000*	*Ongoing*				
Habitat, Hatchery, and Harvest Integration	All	*Enhanced Integration of Habitat, Hatchery, and Harvest Management Actions*	*Co-Managers and Multiple Stakeholders*	***$300,000***	*$0*	*$300,000*					Chinook		*Implement recommendations from regional H-Integration Leadership Group*	*$100,000*	*Implement recommendations from regional H-Integration Leadership Group*	*$100,000*	*Implement recommendations from regional H-Integration Leadership Group*	*$100,000*	*Ongoing*				
Administrative Support of Watershed Committees	All	*Administrative Support and coordination of the watershed committees / Completion and periodic revisions to the watershed salmon plan*	*Multiple stakeholders*			*$0*	*Local govts*				Chinook		*Staffing*		*Staffing*		*Staffing*		*Ongoing*				
Salmon Recovery Coordination	All	*Salmon Recovery Coordination/ Adaptive Management Framework and Plan Implementation tracking*	*Multiple stakeholders*	***$150,000***	*$50,000*	*$100,000*	*Local govts*				Chinook		*Staffing, facilitation, database development, tracking, reporting*	*$50,000*	*Staffing, facilitation, database development*	*$50,000*	*Staffing, facilitation, database development*	*$50,000*	*Ongoing*				
Habitat Project Monitoring	All	*Habitat Project Monitoring*	*Multiple stakeholders*	***$450,000***	*$150,000*	*$300,000*	*Local govts*				Chinook		*Project selelction, scoping, pre-construction, analysis*	*$150,000*	*Scoping, pre-construction, post-construction, analysis*	*$150,000*	*pre-construction, post-construction, analysis, reporting*	*$150,000*	*Ongoing*				
Stock Monitoring Support	All	*Stock monitoring support*	*Multiple stakeholders*	***$1,167,000***	*$426,000*	*$741,000*	*Local govts, WDFW*				Chinook		*Spawner surveys, smolt trapping, PIT-tagging, snorkel surveys*	*$389,000*	*Spawner surveys, smolt trapping, PIT-tagging, snorkel surveys*	*$389,000*	*Spawner surveys, smolt trapping, PIT-tagging, snorkel surveys*	*$389,000*	*Ongoing*				
Evaluating Cumulative Effectiveness	All	*Evaluating Cumulative Effectiveness of Actions*	*Multiple stakeholders*	***$610,000***	*$300,000*	*$310,000*	*Local govts*				Chinook		*selection/ reconnaisance and materials, field work, reporting*	*$120,000*	*Staffing, data acquisition and materials, field work, reporting*	*$370,000*	*Staffing, data acquisition and materials, field work, reporting*	*$120,000*	*Ongoing*				
			Total	***$2,902,000***	***$926,000***	***$1,976,000***							***Total year 1 need***	***$884,000***	***Total year 2 need***	***$1,134,000***	***Total year 3 need***	***$884,000***					
Cedar																							
Non-capital needs for WRIA 8 Plan Programmatic Recommendations for the Cedar (For a more detailed list of the programmatic recommendations, associated limiting factor, and cost estimates, see Attachment B: WRIA 8 Programmatic Actions List)																							
Outreach and Education	Tier 1	*Outreach and education*	*Multiple stakeholders and WRIA 8*	***$309,000***	*$77,250*	*$231,750*	*Local govts, PSAT, and other sources*	*Hydrology, Water and Sediment Quality,Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage*			Chinook		*Staffing, materials, and mix of other resources*	*$103,000*	*Staffing, materials, and mix of other resources*	*$103,000*	*Staffing, materials, and mix of other resources*	*$103,000*	*Ongoing*				
Regulatory Flexibility	Tier 1	*Regulatory flexibility to benefit salmon*	*Multiple stakeholders and WRIA 8*	***$21,000***	*$15,750*	*$5,250*	*Local govts, PSAT, and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$7,000*	*Staffing, materials, and mix of other resources*	*$7,000*	*Staffing, materials, and mix of other resources*	*$7,000*	*Ongoing*				
Incentive Programs	Tier 1	*Increase incentive programs*	*Multiple stakeholders and WRIA 8*	***$210,000***	*$105,000*	*$105,000*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$70,000*	*Staffing, materials, and mix of other resources*	*$70,000*	*Staffing, materials, and mix of other resources*	*$70,000*	*Ongoing*				
Stormwater and Shoreline Management	Tier 1	*Increase innovative approaches to stormwater and shoreline management*	*Multiple stakeholders and WRIA 8*	***$264,000***	*$132,000*	*$132,000*	*Local govt, PSAT, and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$88,000*	*Staffing, materials, and mix of other resources*	*$88,000*	*Staffing, materials, and mix of other resources*	*$88,000*	*Ongoing*				
Best Management Practices	Tier 1	*Increase Best Management Practices (BMPs)*	*Multiple stakeholders and WRIA 8*	***$180,000***	*$135,000*	*$45,000*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$60,000*	*Staffing, materials, and mix of other resources*	*$60,000*	*Staffing, materials, and mix of other resources*	*$60,000*	*Ongoing*				
Existing Regulations	Tier 1	*Support existing regulations that benefit salmon*	*Multiple stakeholders and WRIA 8*	***$282,000***	*$211,500*	*$70,500*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$94,000*	*Staffing, materials, and mix of other resources*	*$94,000*	*Staffing, materials, and mix of other resources*	*$94,000*	*Ongoing*				
		Total Programmatic non-capital need		***$1,266,000***	***$676,500***	***$589,500***							***Total year 1 need***	***$422,000***	***Total year 2 need***	***$422,000***	***Total year 3 need***	***$422,000***					
Capital projects and programs																							
Cedar River - Restore Floodplain Connectivity to Increase In-Stream Juvenile Rearing Productivity																							
Cedar	Floodplain Connectivity	Acquisition	C213	Acquisition and Habitat Protection Upstream of Ron Regis park: Reach 4	Tier 1	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. (C213)	King County	$ 200,000	$ 50,000	$ 150,000	KCD , King County SWM	Floodplain Connectivity and Function, 1, 3	Riparian, Instream, Upland	Land protected, acquired, or leased: streambank protection	Chinook		NA	$ -	acquisition	$ 200,000	NA	$ -	2009	AR	F	Mainstem	2640 ft.
Cedar	Floodplain Connectivity	Restoration	C214	Study Options to Protect Habitat in Reach 4 and Reduce Flooding and Erosion in Ron Regis park	Tier 1	Study Options to Protect Habitat in Reach 4 and Reduce Flooding and Erosion in Ron Regis Park while protecting natural habitat forming processes in reach. Study should include lower Madsen Creek. (C214)	Renton / King County	$ 40,000	$ -	$ 40,000	0	Floodplain Connectivity	Instream, Riparian	Instream: LWD, channel reconfiguration	Chinook		NA	$ -	Feasibility study to evaluat	$ 40,000	NA	$ -	2009				
Cedar	Floodplain Connectivity	Acquisition	C228	Jones Reach Acquisition and Habitat Protection	Tier 1	Jones Reach: 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)	King County / City of Seattle	$ 3,800,000	$ 1,000,000	$ 2,800,000	KCD , King County SWM	Floodplain Connectivity 1, 3	Riparian	Land protected, acquired, or leased: streambank protection	Chinook		Acquisition	$ 1,000,000	acquisition	$ 1,400,000	acquisition	$ 1,400,000	2011	AR	F	Mainstem	29 acres
Cedar	Floodplain Connectivity	Acquisition	C215A	Bucks Curve Buyout	Tier 1	Bucks Curve Buyout: 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. (C215A)	King County / City of Seattle	$ 2,250,000	$ 750,000	$ 1,500,000	KCD , King County SWM	Floodplain Connectivity 1	Riparian	Land protected, acquired, or leased: streambank protection	Chinook		Acquisition	$ 800,000	acquisition	$ 800,000	acquisition	$ 800,000	2009	AR		Mainstem	36.68 acres
Cedar	Floodplain Connectivity	Restoration	C215B	Bucks Curve Levee Setback/Removal	Tier 1	Bucks Curve Levee Setback / Removal: 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. (C215B)	King County / Corps of Engineers	$ 40,000	$ 40,000	$ -	KC Surface Water Mgmt CIP	Floodplain Connectivity 1, 3	Instream, Riparian	Instream: channel reconfiguration, Riparian: planting	Chinook		NA	$ -	NA	$ -	NA	$ -	2013		F	Mainstem	acres above
Cedar	Floodplain Connectivity	Restoration	C222	Cedar Rapids - Ricardi Reach Floodplain Restoration	Tier 1	Cedar Rapids - Ricardi Reach Floodplain Restoration: Levee removal and floodplain restoration and revegetation. (C222)	King County	$ 1,396,000	$ 1,396,000	$ -	SRFB, King County	Floodplain Connectivity 1, 3	Instream, Riparian	Instream: channel reconfiguration, Riparian: planting	Chinook		Construction	$ 1,396,000	Complete in 2007	$ -	Complete in 2007	$ -	2007		F	Mainstem	15 acres

																	2008		2009		2010			For Habitat projects			
				Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secon-dary Species Benefit-ing	Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location within water-shed	Perform-ance
Cedar	Floodplain Connectivity	Restoration	C235	Cedar Grove Road-Rainbow Bend Levee Removal	Tier 1	Cedar Grove Road - Rainbow Bend Levee Removal: Conduct further levee modification work to maximize channel-floodplain interactions. (C235)	King County / Corps of Engineers	$ 50,000	$ 50,000	$ -	King County SWM, Corps	Floodplain Connectivity 1	Instream, Riparian	Instream: channel reconfiguration	Chinook		NA	$ -	NA	$ -	Design	$ 50,000	2010		F	Mainstem	20 acres
Cedar	Floodplain Connectivity	Acquisition	C236	Cedar Grove - Rainbow Bend Mobile Home Park Flood Buyout	Tier 1	Cedar Grove - Rainbow Bend Mobile Home Park Flood Buyout: Purchase mobile home property and relocate approximately 55 mobile homes; purchase and remove 9 single-family homes. (C236)	City of Seattle / King County	$ 5,000,000	$ 4,550,000	$ 450,000	Seattle HCP, Conservation Futures, King County SWM	Floodplain Connectivity 1, 3	Riparian	Land protected, acquired, or leased: streambank protection	Chinook		Acquisition	$ 3,000,000	Relocation	$ 2,000,000	Restoration Design (see C235)	$ -	2009	AR	F	Mainstem	acres above
Cedar	Floodplain Connectivity	Acquisition	C244	Lower Lions Stream Reach Acquisition	Tier 1	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)	King County	$1,620,000		$200,000	Conservation Futures, King County SWM	Floodplain Connectivity 1, 3	Instream, Riparian	Instream: channel reconfiguration, Riparian: planting	Chinook		Acquisition	$540,000	Acquisition	$540,000	Acqusition	$540,000	2009	AR	F	Mainstem	30 acres
Cedar	Floodplain Connectivity	Acquisition	C245	218th Place Side Channel Protection and Enhancement	Tier 1	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)	King County	$500,000	$ -	$ -	0	Floodplain Connectivity 1, 3	Instream, Riparian	Land protected, acquired, or leased: streambank protection	Chinook		NA	$ -	NA	$ -	acquisition	$ 500,000	2012	AR	F	Mainstem	5 acres
Cedar	Floodplain Connectivity	Acquisition	C232	Mouth of Taylor Creek Reach Acquisiton	Tier 1	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)	King County	$ 3,500,000	$ 1,350,000	$ 2.150.000	FEMA, Open Space Bond, King County SWM, Conservation Futures	Floodplain Connectivity 1, 3	Riparian, Wetland	Land protected, acquired, or leased: streambank protection, Instream: channel reconfiguration	Chinook		Acquisition	$ 1,000,000	acquisition	$ 1,250,000	acquisition	$ 1,250,000	2009	AR	F	Mainstem	40 acres
Cedar	Floodplain Connectivity	Acquisition	C253	Belmondo Reach Acquisition	Tier 1	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)	King County	$ 3,100,000	$ 1,100,000	$ 2,000,000	Seattle HCP, Conservation Futures, King County SWM	Floodplain Connectivity 1, 3	Riparian	Land protected, acquired, or leased: streambank protection	Chinook		Acquisition	$ 500,000	acquisition	$ 800,000	acquisition	$ 1,800,000	2009	AR	F	Mainstem	71
Cedar	Floodplain Connectivity	Acquisition	C253	Dorre Don Meanders Reach Acquisition	Tier 1	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)	King County / City of Seattle	$ 4,000,000	$ 1,000,000	$ 3,000,000	Conservation Futures, King County SWM	Floodplain Connectivity, 1	Riparian	Land protected, acquired, or leased: streambank protection	Chinook		Acquisition	$ 1,000,000	acquisition	$ 1,500,000	Acquisition	$ 1,500,000	2011	AR	F	Mainstem	71
Cedar River - Protect and Restore Hydrologic Processes to Support Egg Incubation and Pre-Spawning Migrant Life Stages																											
Cedar	Hydrology	Restoration	C351	Enhance Flows at Lower Rock Creek	Tier 2	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)	Kent	$ -	$ -	$ -		Stream flow, Water quality, High water temperatures?	Instream, Upland?	Instream flow: water flow returned to stream	Chinook			$ -		$ -		$ -			instream flows	Tributary	
Cedar River - Restore LWD to Increase In-Stream Juvenile Rearing Productivity																											
Cedar	LWD	Restoration	C260	LWD over Landsburg Dam	Tier 1	Explore feasibility of passing large woody debris over Landsburg Dam. (C260)	City of Seattle	$ -	$ -	$ -	0	Channel structure and complexity	Instream	Instream: large woody debris	Chinook		0	$ -	Feasibility Study	$ 25,000	NA	$ -	ongoing				
Cedar River - Restore Riparian Function to Increase In-Stream Juvenile Rearing Productivity																											
Cedar	Riparian Function	Restoration	C209 / C210	City of Renton Riparian Restoration	Tier 1	Riparian restoration in City of Renton-owned parkland upstream of I-405 bridge on left bank. (C209/C210)	Renton	$ 81,000	$ 21,000	$ 60,000	Local Governments	and LWD recruitment, Floodplain connectivity	Riparian	Riparian	Chinook		NA	$ -	riparian restoration	$ 81,000	NA	$ -	2009		R	Mainstem	0.5 miles
Migratory																											
Non-capital needs for WRIA 8 Plan Programmatic Recommendations for the Migratory																											
				Outreach and education	Tier 1	*Outreach and education*	*Multiple stakeholders and WRIA 8*	***$711,000***	*$177,750*	*$533,250*	*Local govts, PSAT, and other sources*	*Hydrology, Water and Sediment Quality,Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage*			Chinook		*Staffing, materials, and mix of other resources*	*$237,000*	*Staffing, materials, and mix of other resources*	*$237,000*	*Staffing, materials, and mix of other resources*	*$237,000*	*Ongoing*				
				Integration of regulatory flexibility to benefit salmon	Tier 1	*Integration of regulatory flexibility to benefit salmon*	*Multiple stakeholders and WRIA 8*	***$117,000***	*$87,750*	*$29,250*	*Local govts, PSAT, and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$39,000*	*Staffing, materials, and mix of other resources*	*$39,000*	*Staffing, materials, and mix of other resources*	*$39,000*	*Ongoing*				
				Increase incentive programs	Tier 1	*Increase incentive programs*	*Multiple stakeholders and WRIA 8*	***$159,000***	*$76,500*	*$76,500*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$53,000*	*Staffing, materials, and mix of other resources*	*$53,000*	*Staffing, materials, and mix of other resources*	*$53,000*	*Ongoing*				
				Increase innovative approaches to stormwater and shoreline management	Tier 1	*Increase innovative approaches to stormwater and shoreline management*	*Multiple stakeholders and WRIA 8*	***$246,000***	*$123,000*	*$123,000*	*Local govt, PSAT, and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$82,000*	*Staffing, materials, and mix of other resources*	*$82,000*	*Staffing, materials, and mix of other resources*	*$82,000*	*Ongoing*				
				Increase Best Management Practices (BMPs)	Tier 1	*Increase Best Management Practices (BMPs)*	*Multiple stakeholders and WRIA 8*	***$57,000***	*$42,750*	*$14,250*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$19,000*	*Staffing, materials, and mix of other resources*	*$19,000*	*Staffing, materials, and mix of other resources*	*$19,000*	*Ongoing*				
				Support existing regulations that benefit salmon	Tier 1	*Support existing regulations that benefit salmon*	*Multiple stakeholders and WRIA 8*	***$231,000***	*$173,250*	*$57,750*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$77,000*	*Staffing, materials, and mix of other resources*	*$77,000*	*Staffing, materials, and mix of other resources*	*$77,000*	*Ongoing*				
						Total Programmatic non-capital need		***$1,521,000***	***$681,000***	***$834,000***							***Total year 1 need***	***$507,000***	***Total year 2 need***	***$507,000***	***Total year 3 need***	***$507,000***					
Capital projects and programs																											
Lakes - Restore Shoreline Complexity to Increase Juvenile Rearing and Migratory Survival																											

																	2008		2009		2010			For Habitat projects			
				Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secon-dary Species Benefit-ing	Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Likely end date	Acquisition	Restoration type, if applicable	Location within water-shed	Perform-ance
Lakes	Shoreline Complexity	Restoration	C270	Small Creek Mouth and Shoreline Restoration	Tier 1	Opportunities to restore small creek mouths (including Mapes Creek daylighting demonstration site), and restore shorelines (remove bulkheads or reduce armoring, reduce number of docks by developing community docks, and/or restore vegetation). Work with private landowners (including homeowner demonstration project) and on public lands throughout section 1 and 2. (C267, C269, C270)	Seattle	$ 3,500,000	$ 2,500,000	$ 1,000,000	Seattle / Corps	Reduced habitat capacity	Instream, Lakeshore	Instream: channel reconfiguration, Riparian: planting, Lakeshore: armor modification/ removal, modify/ remove overwater structure	Chinook		Design/Construction	$ 1,500,000	Design/Construction	$ 1,000,000	Design/Construction	$ 1,000,000	2015		Instream/ Riparian	Lakeshore	15 acres; 5.4 acres/ 1760 ft./ 4752 ft (0.4 mile)
				Lake Restoration Initiative	Tier 1	Lake Restoration Initiative - develop a Technical Guidance Manual for lakeside homeowners describing fish-friendly alternatives to bulkheads and overwater structures, along with landscaping options to enhance shoreline habitat. Includes a demonstration project and outreach to lakeside property owners. (C27-30, C32-33, C729-730, C734-736, N50-53, N55-56, I51-52, I54-56. I66)	Local Government	$ 90,000	$ 20,000	$ 70,000	Local Governments	Reduced habitat capacity, Riparian areas and LWD recruitment	Lakeshore	Lakeshore: armor modification/ removal, modify/ remove overwater structure, pollution control	Chinook		Materials development, demonstration project, outreach	$ 90,000					2008		Lakeshore, Restoration	Lakeshore	0.1 miles
Ship Canal Lake Union Locks - Improve Survival of Migrating Adults and Juveniles																											
Ship Canal, Lake Union, and Locks	Passage		M204	Operational Improvements to Locks	Tier 1	Operational Improvements to Improve Juvenile and Adult Chinook Survival (eg Add/Replace strobe lights to locks to deter smolts and prevent entrainment.) (M204)	Corps	$ 150,000	$ 150,000	$ -	Corps	Fish Passage 7	Estuary	Fish passage	Chinook		Operational Improvements	$ 150,000	0	$ -		$ -	Ongoing		In - ship canal	Locks/ Estuary	0.01 mile
Estuary and Nearshore - Improve Juvenile Rearing Habitat																											
				Feeder Bluff Restoration Feasibility Study	Tier 1	Nearshore feasibility assessment to develop multiple beach nourishment designs (M2 & M3)	King County	$20,000	$50,000	$100,000	WDFW; KCD; ESRP	Sediment supply	Nearshore	Beach nourishment	Chinook		Feasibility assessment	$100,000					2010				
Estuary and Nearshore	Passage	Restoration	M222	Big Gulch Pocket Estuary Restoration	Tier 1	Big Gulch Pocket Estuary: Design and restoration of pocket estuary and culvert improvements to restore system connectivity and improve sediment transport into the nearshore. (M222)	Mukilteo	$ 20,000,000	$ 1,900,000	$ 100,000	Local Governments / Grants/ Mitigation	Fish Passage, 7, Reduced access to spawning habitat- fish passage,	Estuary	Estuary, Fish passage: culvert improvements/ upgrades	Chinook		Feasibility and Design	$ 100,000	Restoration	$ 1,900,000		$ -	2010		Estuary	Estuary	1 acre
Estuary and Nearshore	Shoreline Complexity	Restoration	M247	Salmon Bay Natural Area Restoration	Tier 1	Salmon Bay Natural Area Restoration Increase rearing and refuge area for smolts that migrate through and use this transition area between fresh and saltwater. Remove overwater structures and rip-rap, restore vegetation. (M247)	Seattle / Groundswell Northwest	$ 250,000	$ 125,000	$ 125,000	Local Governments	Shoreline Complexity 3	Estuary	Estuary: modify/ remove overwater structure, revegetation, armor modification/remo	Chinook		Restoration	$ 200,000	Restoration	$ 50,000		$ -	2008		Estuary, Riparian	Estuary	0.05 mile
North Lake Washington																											
Non-capital needs for WRIA 8 Plan Programmatic Recommendations for the North Lake Washington																											
				Outreach and education	Tier 1	*Outreach and education*	*Multiple stakeholders and WRIA 8*	***$525,000***	*$131,250*	*$393,750*	*Local govts, PSAT, and other sources*	*Hydrology, Water and Sediment Quality,Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage*			Chinook		*Staffing, materials, and mix of other resources*	*$175,000*	*Staffing, materials, and mix of other resources*	*$175,000*	*Staffing, materials, and mix of other resources*	*$175,000*	*Ongoing*				
				Integration of regulatory flexibility to benefit salmon	Tier 1	*Integration of regulatory flexibility to benefit salmon*	*Multiple stakeholders and WRIA 8*	***$15,000***	*$11,250*	*$3,750*	*Local govts, PSAT, and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$5,000*	*Staffing, materials, and mix of other resources*	*$5,000*	*Staffing, materials, and mix of other resources*	*$5,000*	*Ongoing*				
				Incentive programs	Tier 1	*Increase incentive programs*	*Multiple stakeholders and WRIA 8*	***$147,000***	*$73,500*	*$73,500*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$49,000*	*Staffing, materials, and mix of other resources*	*$49,000*	*Staffing, materials, and mix of other resources*	*$49,000*	*Ongoing*				
				Innovative approaches to stormwater and shoreline management	Tier 1	*Increase innovative approaches to stormwater and shoreline management*	*Multiple stakeholders and WRIA 8*	***$180,000***	*$90,000*	*$90,000*	*Local govt, PSAT, and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$60,000*	*Staffing, materials, and mix of other resources*	*$60,000*	*Staffing, materials, and mix of other resources*	*$60,000*	*Ongoing*				
				Increase Best Management Practices (BMPs)	Tier 1	*Increase Best Management Practices (BMPs)*	*Multiple stakeholders and WRIA 8*	***$177,000***	*$88,500*	*$88,500*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$59,000*	*Staffing, materials, and mix of other resources*	*$59,000*	*Staffing, materials, and mix of other resources*	*$59,000*	*Ongoing*				
				Support existing regulations that benefit salmon	Tier 1	*Support existing regulations that benefit salmon*	*Multiple stakeholders and WRIA 8*	***$462,000***	*$231,000*	*$231,000*	*Local govts and other sources*	"			Chinook		*Staffing, materials, and mix of other resources*	*$154,000*	*Staffing, materials, and mix of other resources*	*$154,000*	*Staffing, materials, and mix of other resources*	*$154,000*	*Ongoing*				
						Total Programmatic non-capital need		***$1,506,000***	***$625,500***	***$880,500***							***Total year 1 need***	***$502,000***	***Total year 2 need***	***$502,000***	***Total year 3 need***	***$502,000***					
Capital projects and programs																											
NLW Tribs - Channel Complexity and Large Woody Debris to support juvenile rearing and fry colonization life stages																											
NLW	Channel Complexity	Restoration	N201	Lower Bear Creek Restoration	Tier 1	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)	Redmond	$ 10,000,000	$ 850,000	$ 2,000,000	City of Redmond design and permitting during 2006	Channel structure and complexity	Instream, Riparian	Instream: channel reconfiguration, large woody debris, Riparian	Chinook		Construction	$ 1,000,000	Construction	$ 9,000,000	Monitoring	$ 25,000	2010		Instream, Riparian	Mainstem	0.6 mile
NLW	Channel Complexity	Restoration	N242	Evaluate Locations for LWD Additions	Tier 1	Evaluate locations for LWD addition. Focus on Reach 6, which has the highest restoration potential but does not presently include any projects. (N242)	King County	$ 350,000	$ 100,000	$ 250,000	Local governments	Channel structure and complexity	Instream	Instream: large woody debris	Chinook		Feasibility Study	$ 50,000	Construction	$ 150,000	Construction	$ 150,000	2013		I, R	Mainstem	1.1 mile
NLW	Channel Complexity	Restoration	N208 / N211	Evans/Bear Creek Restoration	Tier 1	Evans/Bear Creek Restoration: In-channel restoration is needed in Bear Creek and Evans Creak 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)	Redmond / WSDOT	$ 3,000,000	$ 3,000,000	$ -	Private / WSDOT	Channel structure and complexity 1, 3, 4, 5	Instream, Riparian	Instream: channel reconfiguration, large woody debris, Riparian: planting	Chinook		Acquisition	$ 2,000,000		$ -	Restoration	$ 1,000,000	2010		I, R, F	Mainstem	4.65 miles (1.25 + 3.4 miles)
NLW	Channel Complexity	Restoration	N282	Cottage Creek Restoration	Tier 1	Cottage Creek: Explore opportunities to improve floodplain connection in reach by removing riprap or artificial constrictions. (N282)	King County	$ 90,000	$ 90,000	$ 25,000	Local governments	Channel structure and complexity 1, 3	Instream, Riparian	Instream: channel reconfiguration	Chinook		Restoration	$ -		$ -	Restoration	$ 180,000	2009		I, R, F	Mainstem	3.7 miles
				Little Bear Creek Reach 5 Restoration at Alpine Rockeries	Tier 2	Creek Restoration at Alpine Rockeries: Snohomish County project to work with Alphine Rockeries to restore riparian vegetation, add large woody debris and potentially reconfigure stream channel on 800 ft. of stream. Alpine Rockeries Restoration has not been constructed due to change in ownership, but is cited as high benefit and high feasibility in the Plan and much work has already been completed at the site. (N411)	Snohomish County	$ 75,000				Riparian areas and LWD recruitment, Channel structure and complexity	Instream, Riparian	Instream: channel reconfiguration, large woody debris, Riparian: planting	Chinook												

																2008		2009		2010					For Habitat projects			
				Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secon-dary Species Benefit-ing	Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Likely end date					Acquisition	Restoration type, if applicable	Location within water-shed	Perform-ance
				North Creek School (now called Clearwater School) Restoration	Tier 2	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)	Snohomish County	$ 85,000				Riparian areas and LWD recruitment, Channel structure and complexity	Instream, Riparian	Instream: large woody debris, Riparian	Chinook													
NLW Tribs - Hydrologic processes to support egg incubation, juvenile rearing, and adult migration																												
NLW	Hydrology	Acquisition	N216	Bear Creek Forest Cover Protection	Tier 1	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)	King County	$ 800,000	$ 200,000	$ 600,000	Local governments	Water quality, Riparian areas and LWD recruitment	Upland	Land protected, acquired, or leased: streambank protected	Chinook		Acquisition	$ 800,000	$ -	$ -	$ -	$ -	2010				AP		Headwaters	13 acres
NLW	Hydrology	Acquisition	N277	Cottage Creek Forest Cover Protection	Tier 1	Cottage Creek Forest Cover Protection: Acquire forest property, development rights/conservation easements, and provide enhanced incentives to retain and plant forest area environments. In particular, acquire fee interests or conservation easements in Snohomish County on forested headwaters of Cottage Lake Creek and Bear Creek (307 acres in three ownerships). Zoning is rural, 5-acre. (N277)	King County	$ 3,000,000	$ 1,000,000	$ 2,000,000		Water quality, Riparian areas and LWD recruitment	Upland	Land protected, acquired, or leased: streambank protected	Chinook		Acquisition	$ 1,000,000	Acquisition	$ 1,000,000	Acquisition	$ 1,000,000	2012				AR, R	U	307 acres (136.77 + 44.6+126 acres)	
NLW	Hydrology	Acquisition	N422	Little Bear and Great Dane Creeks Forested Wetland Protection	Tier 2	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)	Snohomish County	$ 1,000,000	$ 500,000	$ 500,000	Local governments	Water quality	Wetland	Land protected, acquired, or leased: streambank protected, wetland or estuarine area protected	Chinook		0	$ -	Acquisition	$ 500,000	Acquisition	$ 500,000	2009				AR, R	U, I, F, R, L	Tributary	100 acres
NLW	Hydrology	Acquisition	N424	Little Bear Reach Riparian Wetland Protection	Tier 2	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)	Snohomish County	$ 1,000,000	$ 250,000	$ 750,000		Water quality, Riparian areas and LWD recruitment	Wetland	Land protected, acquired, or leased: streambank protected, wetland or estuarine area protected	Chinook		Acquisition	$ 500,000	Acquisition	$ 750,000	Acquisition	$ 750,000	2010				AR, R	U, I, R/L	Mainstem	55 acres
NLW	Hydrology	Acquisition	N429	Little Bear Creek Forested Headwater Wetlands Protection	Tier 2	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)	Snohomish County	$ 1,500,000	$ 500,000	$ 1,000,000	Local Governments	Water quality, Riparian areas and LWD recruitment	Wetland	Land protected, acquired, or leased: streambank protected, wetland or estuarine area protected	Chinook			$ -	Acquisition	$ 500,000	Acquisition	$ 1,000,000	2011				AP		Headwaters	200 acres
				Reach 6 Protection through Acquisition	Tier 2	North Creek- Protect remaining forest cover and wetlands through CAOs, regulations, BMPs, and incentives and acquisition where regulations and incentives are not sufficient. There are undeveloped forested areas and wetlands in the following reaches: Lower North reaches 4,3,2 and upper North reaches 10,9,8,7 (listed in EDT priority). (N385)		$ 2,000,000				Water quality, Riparian areas and LWD recruitment	Riparian, Wetland	Land protected, acquired, or leased: streambank protected, wetland or estuarine area protected	Chinook													
NLW Tribs River - Restore Riparian Function to Support Juvenile Rearing and Fry Colonization																												
NLW	Riparian Function	Restoration	N206	NLW Tribs Riparian Restoration	Tier 1	Riparian restoration in reach. Most of the reach is publicly owned, but need to remove invasive plants and replant with native vegetation. (N206)	Redmond	$ 25,000	$ 12,500	$ 12,500		Riparian areas and LWD recruitment	Riparian	Riparian: planting, weed control	Chinook			$ -		$ -	Restoration	$ 25,000	2010					R	Mainstem	0.9 mile
NLW	Riparian Function	Acquisition	N232, 303, N293, N286	Bear Creek Waterways Program	Tier 1	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 and the Nichols property. Also protect undeveloped properties that can be restored like the Swanson Horse Farm. (N232, N303, N293, N286)	King County	$ 500,000	$ 100,000	$ 400,000		Riparian areas and LWD recruitment	Riparian	Land protected, acquired, or leased: streambank protected	Chinook			$ -	Acquisition	$ 500,000		$ -	0				AP		Headwaters	530 acres
NLW	Riparian Function	Restoration	N228	Swanson Horse Farm Restoration (Bear Creek)	Tier 1	Restoration needed on Swanson Horse Farm property on NE 140th St. Reduce fine sediments, restore riparian areas. Pursue farm plan to address impacts to Bear Creek. (N228)	King Conservation District, King County	$ 25,000	$ 12,500	$ 12,500		Riparian areas and LWD recruitment, excessive fine sediment	Riparian	Riparian, Sediment reduction	Chinook			$ -	Restoration	$ 25,000		$ -	0					I, R	Headwaters	0.25 acres
NLW	Riparian Function	Restoration	N276	Paradise Valley Conservation Area Restoration (Bear Creek)	Tier 1	Remove invasive plants and plant riparian buffer along Bear Creek through out Paradise Valley Conservation Area. (N276)	Snohomish County	$ 50,000	$ 25,000	$ 25,000		Riparian areas and LWD recruitment	Riparian	Riparian: weed control, planting	Chinook			$ 50,000		$ -		$ -	0					R	Headwaters	1.2 miles
Sammamish River - Protect and Restore Floodplain Connectivity to Support Juvenile Rearing and Adult Migration																												
Sammamish	Floodplain Connectivity	Restoration	N358	Transition Zone Restoration	Tier 1	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 hyporehic flows; and revegetation of riparian and wetland areas with native plants. (N358)	King County	$ 2,070,000	$ 1,270,000	$ 800,000	King County Surface Water Mgmt and River Improvement Fund, Army Corps	Floodplain Connectivity, Channel structure and function	Instream, Wetland, Riparian	I, R, F, U, W	Chinook		Design	$ 270,000	Construction	$ 1,800,000		$ -	2009					I, R, F, U, W	Mainstem	1.5 mile
Sammamish	Floodplain Connectivity	Restoration	N201, N339, N346, N357	Sammamish River Tributary Mouth Restoration Feasibility Study	Tier 1	Sammamish River Tributary Mouth Restoration Feasibility Study: Feasibility and design study for each of the tributary mouths in the Sammamish River. Design work would enable jurisdictions to sponsor projects and seek additional funding to 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, and 0095B. (N201, N339, N346, N357)	King County	$ 150,000	$ 50,000	$ 100,000	Local Government	Floodplain connectivity and function	Instream, Riparian, Wetland	Instream, Riparian, Wetland	Chinook			$ -	Feasibility and Design	$ 150,000		$ -	2015					I, R, F, W	Mainstem	1.0 mile
Issaquah																												
Non-capital needs for WRIA 8 Plan Programmatic Recommendations for the Issaquah																												

				Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secon-dary Species Benefit-ing	2008 Year 1 Scope	2008 Year 1 Cost	2009 Year 2 Scope	2009 Year 2 Cost	2010 Year 3 Scope	2010 Year 3 Cost	Likely end date	For Habitat projects Acquisition	Restoration type, if applicable	Location within water-shed	Perform-ance
				Outreach and education	Tier 1	*Outreach and education*	*Multiple stakeholders and WRIA 8*	***$360,000***	*$90,000*	*$270,000*	*Local govts, PSAT, and other sources*	*Hydrology, Water and Sediment Quality,Floodplain Connectivity, Riparian Vegetation, Sediment Processes, Shoreline Complexity, Passage*					*Staffing, materials, and mix of other resources*	*$120,000*	*Staffing, materials, and mix of other resources*	*$120,000*	*Staffing, materials, and mix of other resources*	*$120,000*	*Ongoing*				
				Integration of regulatory flexibility to benefit salmon	Tier 1	*Integration of regulatory flexibility to benefit salmon*	*Multiple stakeholders and WRIA 8*	***$21,000***	*$15,750*	*$5,250*	*Local govts, PSAT, and other sources*	"					*Staffing, materials, and mix of other resources*	*$7,000*	*Staffing, materials, and mix of other resources*	*$7,000*	*Staffing, materials, and mix of other resources*	*$7,000*	*Ongoing*				
				Increase incentive programs	Tier 1	*Increase incentive programs*	*Multiple stakeholders and WRIA 8*	***$282,000***	*$141,000*	*$141,000*	*Local govts and other sources*	"					*Staffing, materials, and mix of other resources*	*$94,000*	*Staffing, materials, and mix of other resources*	*$94,000*	*Staffing, materials, and mix of other resources*	*$94,000*	*Ongoing*				
				Increase innovative approaches to stormwater and shoreline management	Tier 1	*Increase innovative approaches to stormwater and shoreline management*	*Multiple stakeholders and WRIA 8*	***$114,000***	*$57,000*	*$57,000*	*Local govt, PSAT, and other sources*	"					*Staffing, materials, and mix of other resources*	*$38,000*	*Staffing, materials, and mix of other resources*	*$38,000*	*Staffing, materials, and mix of other resources*	*$38,000*	*Ongoing*				
				Increase Best Management Practices (BMPs)	Tier 1	*Increase Best Management Practices (BMPs)*	*Multiple stakeholders and WRIA 8*	***$129,000***	*$96,750*	*$32,250*	*Local govts and other sources*	"					*Staffing, materials, and mix of other resources*	*$43,000*	*Staffing, materials, and mix of other resources*	*$43,000*	*Staffing, materials, and mix of other resources*	*$43,000*	*Ongoing*				
				Support existing regulations that benefit salmon	Tier 1	*Support existing regulations that benefit salmon*	*Multiple stakeholders and WRIA 8*	***$384,000***	*$288,000*	*$96,000*	*Local govts and other sources*	"					*Staffing, materials, and mix of other resources*	*$128,000*	*Staffing, materials, and mix of other resources*	*$128,000*	*Staffing, materials, and mix of other resources*	*$128,000*	*Ongoing*				
						Total Programmatic non-capital need		***$1,290,000***	***$688,500***	***$601,500***							***Total year 1 need***	***$430,000***	***Total year 2 need***	***$430,000***	***Total year 3 need***	***$430,000***					
				Issaquah Tribs - Protect and Restore Channel Complexity to Support Juvenile Rearing and Pre-Spawning Migrants																							
Issaquah	Channel Complexity	Protection	I204	Sammamish State Park Restoration	Tier 1	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 baded on an aggressive approach. Opportunity ot work with State and consultants on restoration actions. (I204)	Washington State Parks	$ 150,000	$ 150,000	$ -	Washington State Parks / Local Govts	Channel structure and complexity	Instream, Wetland, Riparian, Lakeshore	Instream, Instream Wetland, Riparian, Lakeshore	Chinook		Restoration	$ 50,000	Restoration	$ 50,000	Restoration	$ 50,000	2010		I, W, R, U, F	Mainstem	1.6 miles
			I207	Pickering Place Channel and Riparian Restoration	Tier 1	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)	Issaquah	$500,000		$ 250,000	Local Governments	Channel structure and complexity, floodplain connectivity and function	Instream, Riparian	Instream: channel reconfiguration, Riparian	Chinook		Restoration		Restoration		Restoration		2010		I - Instream, R, F	Mainstem	0.34 miles
				Bush Lane Acquisition and Restoration	Tier I	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)	Issaquah					Floodplain connectivity and function, Channel structure and complexity	Instream, Riparian	Land protected, acquired, or leased: streambank protected, Instream, Riparian								2010	AR/ R	I - Instream, R, F	Mainstem	12.5 acres (1200 ft.)
			I212	Juniper Acres Restoration	Tier 1	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)	Issaquah	$150,000		$75,000	Local Governments	Floodplain connectivity and function	Riparian	Land protected, acquired, or leased: streambank protected	Chinook		Restoration						2010		I - Instream, R	Mainstem	0.1 miles (500 feet)
Issaquah	Channel Complexity	Protection	I215	Anderson Property Acquisition	Tier 1	Anderson Property: Located at confluence of Issaquah Creek and East Fork Issaquah Creek. City has had discussions with the property owner about acquisition of the two parcels, which would add to Issaquah Creek Park. (I215)	Issaquah	$ 156,000	$ 100,000	$ 56,000	Local Governments/ KCD	Floodplain connectivity and function, Channel structure and complexity	Upland, Instream, Riparian	Land protected, acquired, or leased: streambank protected	Chinook			$ -		$ -	Acquisition	$ 156,000	2009	AR, R	U, I, R, F, L	Mainstem	3.9 acres
Issaquah	Channel Complexity	Protection	I225	Additional South Issaquah Creek Greenway Acquisitions	Tier 1	Additional South Issaquah Creek Greenway Acquisitions: Large parcels adjacent to the South Issaquah Creek Greenway offer additional potential for open space preservation, riparian and wetland enhancements, instream restoration, and side channels. Includes Mohl Property, located immediately downstream of Sycamore Drive on west bank; and other properties. (I225)	Issaquah	$ 750,000	$ 375,000	$ 375,000	Local Governments/ KCD	Floodplain connectivity and function, Channel structure and complexity, Instream, Instream wetland, Riparian	Instream, Riparian, Wetland, Upland	Land protected, acquired, or leased: streambank protected	Chinook			$ -		$ -	Acquisition	$ 750,000	2009	AR, R	I, R, W, F, L	Mainstem	10 acres
				Squak Valley Park Restoration	Tier 1	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)	Issaquah	$700,000		$350,000	Local governments	Floodplain connectivity and function, Channel structure and complexity, Riparian areas and LWD	Instream, Riparian	Instream: channel reconfiguration, large woody debris, Riparian	Chinook								2010		Instream, R, W, F, U	Mainstem	0.34 miles
Issaquah	Riparian Function	Protection	I250	Issaquah Waterways Acquisition and Restoration and Carey/ Holder/ Issaquah Creek Confluence	Tier 1	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)	King County	$ 700,000	$ 350,000	$ 350,000	Local Governments/ KCD/Conservation Futures	Riparian areas and LWD recruitment	Riparian	Land protected, acquired, or leased: streambank protected, Riparian: weed control, fencing	Chinook			$ -	Acquire conservation easement	$ 350,000	Acquire Conservation Easement	$ 350,000	2009	AR, R	R, I, F	Mainstem	200 acres
				Issaquah -Protect and Restore Riparian Function to Support Juvenile Rearing and Spawning Migrants																							
Issaquah	Riparian Function	Protection	I222	Wildwood Acquisition	Tier 1	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)	Issaquah	$ 300,000	$ 150,000	$ 150,000	Local Governments	Riparian areas and LWD recruitment	Riparian	Land protected, acquired, or leased: streambank protected	Chinook			$ -		$ -	Acquisition	$ 300,000	2009	AR, R	I, R	Mainstem	
				Issaquah - Protect and Restore Water Quality to Support Egg Incubation, Juvenile Rearing, and Pre-Spawning Migrants																							
Issaquah	Water Quality	Restoration	I255	298th St. Culvert Removal and Restoration	Tier 1	Culvert Removal and Restoration: Replace the culvert at 298th St. within Taylor Mountain Park, which is a partial barrier at low water and poses a significant risk of blowing out under high flows and causing a sediment plume. Remove road prism and restore channel and riparian area. (I255)	King County	$ 200,000	$ 100,000	$ 100,000	Local Governments	Water quality, Reduced access to spawning habitat- fish passage, anthropogenic and natural	Instream	Fish passage: culvert replacement, Instream, Riparian, Sediment reduction: road relocation	Chinook			$ -	Construction	$ 200,000		$ -	2008		Instream	Tributary	0.1 mile
				Issaquah - Hatchery Capital Projects																							
				Issaquah Integrated Fish Passage	Tier 1	Issaquah Integrated Fish Passage. Allow unhindered adult passage of Chinook and coho. Open up 10 miles of habitat. (was "Issaquah Hattchery Dam Passage") (I221)	Issaquah, Corps of Engineers, and WDFW	$800,000	$2,400,000	$ 400,000	Local Governments, Army Corps of Engineers, WDFW	access to spawning habitat- fish passage, anthropogenic	Instream	Fish passage: fishways	Chinook			$ 400					2010		P - Fish Passage	Mainstem	11 miles

														2008		2009		2010			For Habitat projects			
Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secon-dary Species Benefit-ing	Year 1 Scope	Year 1 Cost	Year 2 Scope	Year 2 Cost	Year 3 Scope	Year 3 Cost	Likely end date		Acquisition	Restoration type, if applicable	Location within water-shed	Perform-ance
Priority projects and programs benefitting non-listed species																								
Ebright Creek Enhancement and Acquisition	Tier 1	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.	City of Sammamish	$ 300,000	$ 150,000	$ 150,000	Local Governments	Shoreline Complexity	Instream, Riparian	Land protected, acquired, or leased: streambank protected					Acquisition	$ 300,000			2010		AR, R	I, R, L, U	Lakeshore, tributary	
TOTALS																								
Capital						Local Share is X times Grant Request:																		
				$ 25,577,000	$ 11,307,000	$ 12,350,000	0.92						Cedar Total	$ 9,236,000	Cedar Total	$ 8,636,000	Cedar Total	$ 7,840,000	Cedar Total					
				$ 3,500,000	$ 2,500,000	$ 1,000,000	2.50						Lake Washington Total	$ 1,500,000	Lake Washington Total	$ 1,000,000	Lake Washington Total	$ 1,000,000	Lake Washington Total					
				$ 150,000	$ 150,000	$ -	NA						Ship Canal / Lk Union / Locks Total	$ 150,000	Ship Canal / Lk Union / Locks Total	$ -	Ship Canal / Lk Union / Locks Total	$ -	Ship Canal / Lk Union / Locks Total					
				$20,270,000	$2,075,000	$325,000	6.38						Estuary / Nearshore Total	$400,000	Estuary / Nearshore Total	$ 1,950,000	Estuary / Nearshore Total	$ -	Estuary / Nearshore Total					
				$ 23,500,000	$ 6,640,000	$ 7,575,000	0.88						North Lk Washington Tribs Total	$ 5,400,000	North Lk Washington Tribs Total	$ 12,425,000	North Lk Washington Tribs Total	$ 4,630,000	North Lk Washington Tribs Total					
				$ 2,220,000	$ 1,320,000	$ 900,000	1.47						Sammamish River Total	$ 270,000	Sammamish River Total	$ 1,950,000	Sammamish River Total	$ -	Sammamish River Total					
				$ 3,606,000	$ 1,225,000	$ 1,706,000	0.72						Issaquah Creek Total	$ 50,000	Issaquah Creek Total	$ 600,000	Issaquah Creek Total	$ 1,606,000	Issaquah Creek Total					
				$300,000	$150,000	$150,000	1.00						Non-Listed Species	$0	Non-Listed Species	$300,000	Non-Listed Species	$0	Non-Listed Species Total					
		Total capital need		$ 79,123,000	$ 25,367,000	$ 24,006,000							**WRIA 8 Yr 1**	$ 17,006,000	**WRIA 8 Yr 2**	$ 26,861,000	**WRIA 8 Yr 3**	$ 15,076,000						
Non-Capital																								
				$2,902,000	***$926,000***	***$1,976,000***								*$884,000*		*$1,134,000*		*$884,000*						
				$1,266,000	***$676,500***	***$589,500***								*$422,000*		*$422,000*		*$422,000*						
				$1,521,000	***$681,000***	***$834,000***								*$507,000*		*$507,000*		*$507,000*						
				$1,506,000	***$625,500***	***$880,500***								*$502,000*		*$502,000*		*$502,000*						
				$1,290,000	***$688,500***	***$601,500***								*$430,000*		*$430,000*		*$430,000*						
		Total non-capital need		***$8,485,000***	***$3,597,500***	***$4,881,500***							***Total year 1 need***	***$2,745,000***	***Total year 2 need***	***$2,995,000***	***Total year 3 need***	***$2,745,000***						
		GRAND TOTAL		***$87,608,000***	***$28,964,500***	***$28,887,500***							***Total year 1 need***	***$ 19,751,000***	***Total year 2 need***	***$ 29,856,000***	***Total year 3 need***	***$ 17,821,000***						

* In the recent past, WRIA 8 received $60,000/year for lead entity coordination. The $75,000 figure is an estimate received from Evergreen Funding.

Draft Three-Year Watershed Implementation Priorities for WRIA 8

Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secondary Species Benefiting	2008 Year 1 Scope	2008 Year 1 Cost	2009 Year 2 Scope	2009 Year 2 Cost	2010 Year 3 Scope	2010 Year 3 Cost	Completion Date	For Habitat projects: Acquisition	For Habitat projects: Restoration type, if applicable	For Habitat projects: Location within water-shed	For Habitat projects: Perform-ance
Cedar																							
Capital projects and programs																							
Cedar River - Restore Floodplain Connectivity to Increase In-Stream Juvenile Rearing Productivity																							
Lower Taylor Creek Floodplain Restoration	**Tier I**	Lower Taylor Creek Floodplain Restoration. Restores and reconnects to historic floodplain, including restoring, creating, or enhancing 8 acres of wetland, demolition of structures, create refuge access in the lower Cedar River basin. (C333)	King County	$600,000		$300,000	KCD , King County SWM, Conservation Futures	Floodplain Connectivity 1, 3	Mainstem	F			Restoration						2007		F	Mainstem	10 acres
Priority projects and programs benefitting non-listed species																							
Zacusse Creek and E. Shore of Lake Sammamish Enhancement	**Tier 1**	Daylight Zacusse Creek and enhance mouth on East shore of Lake Sammamish to benefit Kokanee, juvenile Chinook and other fish species.	City of Sammamish	$250,000	*100,000*	*$150,000*	Local Governments	Shoreline Complexity	Lakeshore, Tributary	I, R, P	Juvenile Chinook	Kokanee, Other Fishes			Design	35000	Construction	215000	2007		I, R, P	Lakeshore, Tributary	150 ft.
TOTALS																							
Capital						**Local Share is X times Grant Request:**																	
				$ 600,000	$ -	$ 300,000	0.00						Cedar Total	$ -	Cedar Total	$ -	Cedar Total	$ -	Cedar Total				
													Lake Washington Total		Lake Washington Total		Lake Washington Total		Lake Washington Total				
													Ship Canal / Lk Union / Locks Total		Ship Canal / Lk Union / Locks Total		Ship Canal / Lk Union / Locks Total		Ship Canal / Lk Union / Locks Total				
													Estuary / Nearshore Total		Estuary / Nearshore Total		Estuary / Nearshore Total		Estuary / Nearshore Total				
													North Lk Washington Tribs Total		North Lk Washington Tribs Total		North Lk Washington Tribs Total		North Lk Washington Tribs Total				
													Sammamish River Total		Sammamish River Total		Sammamish River Total		Sammamish River Total				
													Issaquah Creek Total		Issaquah Creek Total		Issaquah Creek Total		Issaquah Creek Total				
				$250,000	$100,000	$150,000	0.67						Non-Listed Species	$0	Non-Listed Species	$35,000	Non-Listed Species	$215,000	Non-Listed Species Total				
		Total capital need		**$ 850,000**	**$ 100,000**	**$ 450,000**							**WRIA 8 Yr 1**	**$ -**	**WRIA 8 Yr 2**	**$ 35,000**	**WRIA 8 Yr 3**	**$ 215,000**					
Non-Capital																							
				#REF!	#REF!	#REF!																	
				#REF!	#REF!	#REF!																	
				#REF!	#REF!	#REF!																	
				#REF!	#REF!	#REF!																	
				#REF!	#REF!	#REF!																	
		Total non-capital need		***#REF!***	***#REF!***	***#REF!***							***Total year 1 need***	***$0***	***Total year 2 need***	***$0***	***Total year 3 need***	***$0***					
		GRAND TOTAL		***#REF!***	***#REF!***	***#REF!***							***Total year 1 need***	***$ -***	***Total year 2 need***	***$ 35,000***	***Total year 3 need***	***$ 215,000***					

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Draft Three-Year Watershed Implementation Priorities for WRIA 8

Project Name	Priority Tier	Project Description	Likely sponsor	Total cost of first three years	Local share or other funding	Proposed SRFB (or grant) share	Source of funds	Primary Limiting Factors Addressed	Habitat Type	Activity Type	Primary Species Benefiting	Secondary Species Benefiting	2008 Year 1 Scope	2008 Year 1 Cost	2009 Year 2 Scope	2009 Year 2 Cost	2010 Year 3 Scope	2010 Year 3 Cost	Likely end date	For Habitat projects: Acquisition	For Habitat projects: Restoration type, if applicable	For Habitat projects: Location within water-shed	For Habitat projects: Perform-ance
TOTALS																							
Capital						Local Share is X times Grant Request:																	
				#REF!	#REF!	#REF!	#REF!						Cedar Total	#REF!	Cedar Total	#REF!	Cedar Total	#REF!	Cedar Total				
				#REF!	#REF!	#REF!	#REF!						Lake Washington Total	#REF!	Lake Washington Total	#REF!	Lake Washington Total	#REF!	Lake Washington Total				
				#REF!	#REF!	#REF!	NA						Ship Canal / Lk Union / Locks Total	#REF!	Ship Canal / Lk Union / Locks Total	#REF!	Ship Canal / Lk Union / Locks Total	#REF!	Ship Canal / Lk Union / Locks Total				
				#REF!	#REF!	#REF!	#REF!						Estuary / Nearshore Total	#REF!	Estuary / Nearshore Total	#REF!	Estuary / Nearshore Total	#REF!	Estuary / Nearshore Total				
				#REF!	#REF!	#REF!	#REF!						North Lk Washington Tribs Total	#REF!	North Lk Washington Tribs Total	#REF!	North Lk Washington Tribs Total	#REF!	North Lk Washington Tribs Total				
				#REF!	#REF!	#REF!	#REF!						Sammamish River Total	#REF!	Sammamish River Total	#REF!	Sammamish River Total	#REF!	Sammamish River Total				
				#REF!	#REF!	#REF!	#REF!						Issaquah Creek Total	#REF!	Issaquah Creek Total	#REF!	Issaquah Creek Total	#REF!	Issaquah Creek Total				
				#REF!	#REF!	#REF!	#REF!						Non-Listed Species	#REF!	Non-Listed Species	#REF!	Non-Listed Species	#REF!	Non-Listed Species Total				
		Total capital need		#REF!	#REF!	#REF!							WRIA 8 Yr 1	#REF!	WRIA 8 Yr 2	#REF!	WRIA 8 Yr 3	#REF!					
Non-Capital																							
				#REF!	***#REF!***	***#REF!***								*#REF!*		*#REF!*		*#REF!*					
				#REF!	***#REF!***	***#REF!***								*#REF!*		*#REF!*		*#REF!*					
				#REF!	***#REF!***	***#REF!***								*#REF!*		*#REF!*		*#REF!*					
				#REF!	***#REF!***	***#REF!***								*#REF!*		*#REF!*		*#REF!*					
				#REF!	***#REF!***	***#REF!***								*#REF!*		*#REF!*		*#REF!*					
		Total non-capital need		***#REF!***	***#REF!***	***#REF!***							***Total year 1 need***	***#REF!***	***Total year 2 need***	***#REF!***	***Total year 3 need***	***#REF!***					
		GRAND TOTAL		***#REF!***	***#REF!***	***#REF!***							***Total year 1 need***	***#REF!***	***Total year 2 need***	***#REF!***	***Total year 3 need***	***#REF!***					

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