

Appendix K: East Kitsap Salmon Recovery Funding Board Projects

Kitsap County Lead Entity Salmon Recovery Funding Board (SRFB) Funded Projects 1999-2003

Curley Creek Estuary Acquisition

Sponsors: Great Peninsula Conservancy

SRFB: \$294,500

Sponsor Match: \$52,000

Total Cost: \$346,500

Status: Active

This project will preserve the Curley Creek estuary, by acquiring the lands (20 acres) that comprise its entire shoreline, the surrounding steep slopes, and 6 adjacent forested upland parcels.

The Curley/Salmonberry Creek system, one of the largest watersheds in south Kitsap, supports 5 species of salmonids: Chinook, coho, chum, steelhead and cutthroat. Its estuary is currently in a relatively natural state and in good condition, without any armoring or other development on its shoreline or slopes.

Estuaries are critical to the survival of salmon, providing rearing habitat for juveniles and refugia for adults and juveniles, and serving as crucial transition zones for smolts moving from fresh to salt water. Extensive alterations of estuaries and other nearshore areas by humans have seriously harmed these habitats and the species most dependent on them -- particularly chum and Chinook, both present in the Curley Creek estuary.

90% of the estuary lands are in one ownership and are for sale. If developed, the mature native forest will be replaced with residences, drainfields and impervious surfaces, with attendant impacts to the property's steep slopes, the shoreline and the estuary itself. The opportunity to protect the integrity of this estuary will be lost.

Acquiring these 20 acres for conservation and educational use will protect this estuary in its natural state and preserve it for use by the diversity of salmonids that use this system and adjacent nearshore areas.

Barker Creek Estuary Culvert Replacement

Sponsors: Mid Puget Sound Fisheries Enhancement Group

SRFB: \$417,000

Sponsor Match: \$83,000

Total Cost: \$500,000

Status: Active

Historically, Barker Creek, which flows into Dyes Inlet of South Puget Sound, has always been an important stream for migration, spawning and rearing habits of Coho, Chum, Cutthroat, and

Steelhead. However, in order to meet the needs of a rapidly growing population, pipe culverts were installed and natural systems were interrupted while overlooking the criteria required for successful salmon runs. Years later, these same species, in addition to a limited number of Chinook still utilize this system. Chums of Barker Creek, a 501(c) (3) organization of stewards incorporated in 1993, has been successful in protecting the riparian zones by obtaining a SRFB grant (2001) to acquire parcels and conservation easements along the corridor. In addition, in 1999 Kitsap County Public Works removed two partial fish barriers upstream replacing them with bottomless concrete culverts. The one remaining culvert installed in 1939 at the estuary at Tracyton Blvd. is seriously deficient. As per "Action Recommendation #1. Replace the culvert at Tracyton Blvd. Crossing with a bridge of sufficient length to restore natural estuarine function up stream, to ensure unobstructed fish passage, and to restore natural sediment transport." (Limiting Factors Analysis 2000) Requests for funding for an aluminum bottomless culvert would address: the high tidal flows which cause velocity barriers for juveniles; and the low flows which limit the natural process for ideal fish habitat at all stages.

Carpenter Creek Estuary Restoration

Sponsor: Kitsap County Public Works

SRFB: 618,905

Sponsor Match: 1,609,493

Total Cost: \$2,228,398

Status: Active

This project is located in Carpenter Creek estuary, which flows into Appletree Cove and drains into Puget Sound near Kingston, WA. This site is a large high quality estuary located in a critical position for migrating salmon from river basins throughout Puget Sound, including ESA listed Puget Sound Chinook. High rates of juvenile chinook and coho have been consistently encountered in commercial purse seine fisheries at Apple Cove Point near the restoration site. Other salmonids inhabiting Carpenter Creek include chum, coho, and cutthroat trout.

An undersized culvert at S. Kingston Rd. prevents adequate flow between the salt marsh and estuary and is a partial fish barrier. Significant portions of the marsh are filling in with sediment and freshwater wetland species are encroaching into the upper salt marsh. The 6' wide box culvert has also created large, deep scour holes at both ends of the culvert, trapping juvenile salmonids at low tide, where they become easy prey. The proposed project (Phase 1) would replace the S. Kingston Rd. culvert with a 70' single span bridge. The project would reestablish natural tidal flow to approximately 26.2 acres of estuary/saltmarsh habitat. As the last significant functioning estuary before leaving Puget Sound, Carpenter Creek Estuary plays an important role in the life history of resident and migrating salmonids.

Salmonberry Creek Restoration

Sponsor: Mid Puget Sound Fisheries Enhancement Group

SRFB: \$288,600

Sponsor Match: \$59,000

Total Cost: 348,500

Status: Active

The Salmonberry Creek restoration project will create a side channel that will flow through a series of ponds that mimic beaver pond rearing areas for coho and cutthroat. This channel will help to alleviate the adult stranding that takes place annually due to stream channelization and invasive plant species within this agricultural area. This stranding is occurring before the salmon reach their spawning grounds. The side channel will add approximately 5,000 lineal feet of rearing habitat and ease adult migration through this channelized segment. This project is expected to significantly increase the juvenile coho and cutthroat numbers and survival rates. This area is completely devoid of riparian vegetation, therefore, a riparian buffer will also be re-established for an average of 100 feet wide along the created channel and the area between the new channel and the existing creek. Conservation easements will be secured for long-term protection of the project and the resource.

Glud's Pond Fish Passage Improvements

Primary Sponsors: Kitsap County Public Works

SRFB: \$830,872

Sponsor Match: \$146,625

Total Cost: \$977,497

Status: Active

WDFW has identified two culverts under Brownsville Hwy. and one adjacent to the Hwy. as complete barriers to chum, coho salmon and sea-run cutthroat trout, listing this project as Priority #2. In addition, a private flow diversion structure located at the upper end of the project site creates adverse conditions for migrating fry/smolt.

This project will realign the South Fork of Steele Creek through the Glud's Pond area. Both ponds will be removed and replaced with a meandering stream channel. The proposed channel will be located on the west side of Brownsville Highway discontinuing the use of both barrier culverts. The total channel length will increase by 40' and the width will average 12'.

A series of three log sills will be used to provide grade control and allow fish passage. The restored channel will have a gradient of 1.25 percent in the reaches without log sills and a slope of 5% in areas with log sills. Alternating grades will provide reaches where fish can rest. Small plunge pools will be located below each log sill with woody debris located at meander bends to enhance instream habitat.

The project is located in the vicinity of the Gluds Pond St./Brownsville Hwy. Intersection, in northeast Central Kitsap County. Project activities include design, land acquisition and construction to realign and restore the South Fork of Steele Creek with a meandering stream channel. Coho, chum salmon and sea-run cutthroat trout are the target species for passage.

Barker Creek Corridor Acquisition

Primary Sponsor: Kitsap County Parks and Recreation

SRFB: \$761,000
Sponsor Match: \$384,059
Total Cost: \$1,145,059
Status: Active

Barker Creek, located on the Kitsap Peninsula, with headwaters at Island Lake flows primarily through large undeveloped and single family parcels, emptying into Dyes Inlet. This project will purchase 54 acres of conservation easements and 50 acres of real property along this stream corridor. The acquisitions constitute phases 2 and 3 of a 4-phase project which began with the purchase of Three Springs property in 2000. This parcel, considered a cornerstone of the project, contributes 13% of the total streamflow of Barker Creek. Purchase of the parcel was contingent on an agreement that the local community pursue protection of the entire riparian corridor. This proposal constitutes their effort to meet that requirement.

The proposal was initiated and developed by the Chums of Barker Creek, a 501(c)(3) organization incorporated in 1993 for the purpose of protecting and enhancing the salmon stream and its habitat. The area is heavily forested with cedar, Douglas fir, deciduous trees and a lush ground cover of rainforest vegetation.

Salmonids to benefit from the acquisition project include chinook, chum, coho, steelhead and cutthroat. Numerous migratory and resident birds utilize the corridor for nesting and feeding. Problems addressed by this proposal include effects of logging activities, a rapidly developing urban growth area, and increased taxes which could force some landowners to sell land they would otherwise prefer to preserve.

Dogfish Creek Estuary Bridge Restoration

Primary Sponsor: City of Poulsbo
SRFB: \$1,430,000
Sponsor Match: \$253,000
Total Cost: \$1,683,000
Status: Complete

The City of Poulsbo will restore habitat and ecological functions to the upper Liberty Bay/Dogfish Creek estuary by removing the culvert that blocks saltwater exchange over 4 acres of tidelands. This shoreline/tideland complex is listed as critical habitat by NMFS to the recovery of Puget Sound chinook. The benefits gained from this project include recovery of the intertidal marine algae, epibenthic production of primary juvenile salmon food items including copepods and amphipods and other invertebrates, and enhancement of associated habitat attributes. Dogfish Creek has runs of chinook, coho, and chum salmon and steelhead and cutthroat trout that will benefit from this project. This bridge project will tie into City Parks Department's passive use/salmon education trail and riparian property acquisition to protect and restore Dogfish Creek's salmon runs.

Bainbridge Island Nearshore Assessment

Primary Sponsor: City of Bainbridge Island

SRFB: \$190,750

Sponsor Match: \$14,250

Total Cost: \$205,000

Status: Almost complete

This project will develop baseline physical and biological conditions of the natural and altered nearshore and estuarine features/habitats of Bainbridge Island's 45 miles of shoreline and 8 estuaries. The project will identify opportunities for habitat preservation and restoration and strategically prioritize them. The prioritized projects will effect recovery of listed chinook salmon, and other salmonid species that forage in the nearshore environment. The project will serve as an implementation tool in Bainbridge Island's land use policy development/modification. The project will help target shoreline public education and outreach programs. The project will characterize present and historic coastal drift (net shore-drift) patterns and the degree of discontinuity that shoreline modifications have created. Properly functioning conditions will be determined by tying coastal geology and biology (targeted fish species) and fisheries habitat distribution (quantity and quality). By assessing properly functioning conditions within drift cells such as feeder bluffs, substrate and riparian and aquatic habitat, this project will provide baseline information that is imperative to monitor the success of future preservation and restoration efforts. Due to the nature of the project, it is necessary for some activities to take place over four seasons. Partnership efforts are being discussed with King county nearshore Technical group, the Suquamish Tribe, and Kitsap County.

Key Peninsula Nearshore Salmon Habitat Assessment

Primary Sponsor: Pierce County Water Programs Division

SRFB: \$178,500

Sponsor Match: \$31,500

Total Cost: \$210,000

Status: Complete

While it is known that estuaries and other near shore areas provide critical habitat for juvenile salmon, little is known about the habitat provided in specific areas. As part of its salmon recovery effort, Pierce County is proposing an assessment of salmonid habitat for the 144 miles of shoreline on Key and Gig Harbor Peninsulas, and Fox and Anderson Islands. This scientific assessment will provide the habitat information needed to develop a strategy for protection of remaining good habitat and restoration of other near shore salmonid habitat. The assessment is intended to be a rapid evaluation of the near shore areas, based on dividing the near shore into biologically and physically similar segments that can be distinguished in the field by a team of experts using a set of established criteria. The characteristics of these segments are evaluated in terms of their size and the habitat functions they support.

A team of experts familiar with the area is being assembled as a steering committee to help guide the work. The team will help Pierce County gather existing information, prepare a scope of work, assist a consultant to adapt an assessment methodology for local conditions, and then review the strategy document.

Barrier Prioritization Survey – WRIA 15

Primary Sponsor: Pierce County Conservation District

SRFB: 73,700

Sponsor Match: \$48,000

Total: \$121,700

Status: Complete

The Pierce Conservation District is in the process of completing an inventory of fish passage barriers in the andromous zone of East WRIA 15. Over 140 structures have been identified, with 56% of those determined to be barriers to fish passage. The next step is to prioritize those barriers, so higher priority projects can be addressed first. Prioritization is conducted following WDFW protocol as described in the Fish Passage Barrier Assessment and Prioritization Manual, and involves completing a field habitat survey of stream reaches above fish passage barriers to determine the quantity and quality of available habitat. Prioritization also considers species utilization, stock status for species utilizing the stream, and project cost. The result is a Priority Index (PI) score, which can be used to directly compare priorities of proposed projects. PI scores on some culverts identified by the Conservation District identified culverts in the Puyallup watershed have been used to rank projects for the 2000 construction season. After prioritization has been completed, the top ten barrier culverts will be addressed and preliminary design work will be completed. The prioritized list will also be available for Enhancement Groups, Conservation Districts, Cities, Counties, and other entities to use as a project list from which to work.

Minter Creek Watershed Fish Passage Restoration

Primary Sponsor: South Puget Sound Salmon Enhancement Group

SRFB: \$665,882

Sponsor Match: \$117,509

Total Cost: 783,391

Status: Active

This proposal employs a "watershed-based approach" to the identification and removal of five culvert barriers to salmonid migration in the Minter Creek watershed. This project will replace the blockages with structures that allow unimpeded fish passage for salmonids at all life stages. The project sites are scattered throughout the basin on Minter Creek and its two major tributaries, Little Minter Creek and Huge Creek, and were identified by the pierce Conservation District Culvert Inventory for the key Peninsula and Gig Harbor Watersheds (2001). Newly accessible habitat will be suitable for chinook, chum and coho salmon, steelhead, and sea-run and resident cutthroat trout. The Salmon and Steelhead Stock Inventory (SASSI) stocks in this basin are considered wild and mixed. This project will not only increase available spawning and rearing habitat, but will also allow downstream migration of streambed material, upstream movement of nutrients in the form of salmon carcasses, and will reduce the risk of road failure at aging and undersized crossing structures. A partnership may be formed with the Pierce Conservation District on some or all of these culvert replacements, as discussion has been initiated amongst new staff at each organization concerning long-term cooperation on such projects.

Dogfish Creek Estuary Restoration

Primary Sponsor: City of Poulsbo

SRFB: \$450,439

Sponsor Amount: 695,400

Total Cost: \$1,145,839

Status: Active

This project will restore 1,200' of estuarine shoreline and 13 acres of adjacent upland habitat along Dogfish Creek estuary within the City of Poulsbo. The project is located on Liberty Bay on the west side of central Puget Sound. This project is contiguous to a major 2nd Round SRFB project: removal of a culvert/construction of a bridge to restore over 4 acres of estuarine habitat. This shoreline/estuary complex is listed as critical habitat by NMFS for the recovery of Puget Sound chinook salmon and is a designated shoreline conservancy area by Poulsbo zoning. Dogfish Creek has important runs of chinook, coho, chum, steelhead salmon and searun cutthroat trout. This project is an integral component of the City Parks Department's future Salmon Park and planned Poulsbo Environmental learning Center.

The project will prevent development of a shopping center/office complex, restore native conifers and complex habitat structure to the shoreline, and restore the stream that crosses the property. The land will be designated as passive open space and set aside for habitat restoration. The public will access the property through designated, environmentally friendly trails to learn about habitat restoration, the ecological interaction between the terrestrial and aquatic (freshwater and estuarine) environments, and observe fish and wildlife.

Sinclair Inlet North Shore Estuary Restoration

Primary Sponsor: Port of Bremerton

SRFB:\$318,307

Sponsor Match: \$57,000

Total Cost: \$375,307

Status: Funded

The purpose of this project is to restore to 1942 vintage the western most 1500 feet of the Northern shoreline of Sinclair Inlet and to increase the productive area of existing estuary by 1.7 acres. (See enclosed, photos, mapping, and drawings) Sinclair Inlet along with it's shoreline and estuary is a major passage way and nursery for Chinook, Coho, Chum Steelhead Salmon and Searun Cutthroat trout entering and leaving Gorst Creek. Several miles of the Northern shoreline have been hardened with riprap to accommodate SR 16 and PSNS railroad. The only portion of Northern shoreline between Gorst and Navy Yard City Interchange that can be restored is the subject of this grant request.

This project will include two phases. Both phases together will restore 1,820 feet of shoreline and 4.2 acres of estuary. Phase 1 of the project, the subject of this grant, will effect the cleanup of all 1160 feet of the existing shoreline, restore 620+ feet of shoreline, and create 1.7 acres of

additional estuary. Phase two of the project will be the subject of further grant requests and will be completed when additional funding is available. (See enclosed chart for further site information).

The importance of estuarine and shoreline habitat to salmon productivity is well documented. There is a direct correlation between outgoing wild chinook smolt survival from Gorst Creek and the health, and configuration of the shoreline of Sinclair Inlet. Over 1000 wild Chinook spawn in Gorst Creek.

East Fork Rocky Creek Bridge Project

Primary Sponsor: Pierce County Public Works

SRFB: \$330,696

Sponsor Match: \$110,232

Total Cost: \$440,927

Status: Complete

The existing barrier consists of an 8' x 8' concrete box structure supporting the Wright-Bliss road. The box structure outlet elevation is about 4 feet above the outlet streambed. The structure size restricts normal flood water flow causing a backwater and flooding effect. Extreme velocities through the box structure result in downstream erosion. The proposed correction is to remove the box structure and replace it with a 61-foot long single span, pre-cast, pre-stressed concrete bridge.

SW ESU Pierce County (KGI Watershed)

Primary Sponsor: Pierce County Conservation District

SRFB: \$67,373

Sponsor Match: \$52,230

Total Cost: \$119,602

Status: Complete

All four projects will be conducted by Pierce Co, in cooperation with Peninsula Salmon and Pierce Co CD. Both projects involve replacing undersized or perched culverts at road crossings with appropriately sized, countersunk culverts or bridges. At each site, the fish-blocking culvert represents the limiting factor for salmon production by inhibiting adult and juvenile salmon migration for spawning and rearing.

Minter Creek is one of two streams located in Pierce County west of the Narrows Bridge that is identified in the Washington State Stream Catalogue as a chinook bearing stream. The project would replace a private road crossing that consists of five separate small pipes with a small bridge. The result will be an additional 3.5 miles of stream accessible to salmon.

Herron Ck is a private road crossing with a history of erosion, siltation and fish-blocking. This site is impacted by natural sediment and gravel movement through the stream that exceeds the culvert capacity. The culvert is also at the bottom of a steep-gradient unpaved road, which

contributes additional sediment. The project removes two 36" concrete pipes with a single arched culvert to accommodate flows & the opening of 1.4 miles of habitat to salmon.

Gorst Creek Restoration

Primary Sponsor: Bremerton Public Works

SRFB: \$368,150

Sponsor Match: \$166,500

Total Cost: \$534,650

Status: Complete

The proposed Gorst Creek Restoration project removes approx. 720 ft. of stream from a concrete lined channel to restore segment to a natural configuration. Existing conditions: sparse shallow substrate, absence of pools, LWD, and natural vegetation. These conditions limit spawning and rearing, especially during high flow. Proposed restoration: 1) construct approx. 1000 ft. of naturally configured earthen channel; 2) place substrate suitable for spawning medium; 3) construct adjacent backwaters and wetlands; 4) place natural log, root wad, and rock structures; 5) Establish native trees and shrubs within riparian zone. Project benefits: augment and improve spawning areas; create new rearing and resting areas; enhance overall salmonid habitat and migration; restore natural riparian conditions. Salmonids utilizing this system include fall native chum, mixed stock coho, winter wild steelhead, cutthroat, and hatchery fall chinook (Grover Cr. stock).

Gorst Creek, on the Kitsap Peninsula SW of Bremerton drains approx. 5800 acres to Sinclair inlet in south Puget Sound. The project site and half of the upper watershed is owned by the City of Bremerton Water Utility. The habitat upstream of the project site is in excellent condition, with most of the basin being forested. The existing concrete channel was part of the original supply system and has been in place 60+ yrs. Design plans will be completed early 2000. Project is supported by the Kitsap PUD and the Suquamish Tribe.

