
ZACCUSE CREEK CULVERT REPLACEMENT

Location:	Zaccuse Creek (tributary to Lake Sammamish), King County, WA. WRIA #08.0145
Proposed Action:	Remove culvert under the East Lake Sammamish Trail and replace with concrete box culvert to extend daylighting of creek and prepare for eventual ELS Parkway culvert replacement.
Species Benefiting:	Kokanee, cutthroat



Kokanee/Chinook Restoration Feasibility Assessment in the Sammamish Watershed

Map F - Zaccuse Creek - Trail Culvert Removal Project



11810 North Creek Parkway N
Bothell, WA 98011

Project 0-915-17013-0

- Sanitary sewer
- Storm sewer
- Water utility
- Contour
- Watercourse
- Parcel



0 50 100 Feet

Lake
Sammamish

1738700090

1738700085

1738700080

EAST LAKE SAMMAMISH SHORE LN NE

EAST LAKE SAMMAMISH PKWY NE

Zaccuse Creek

Zaccuse Creek - Trail Culvert Removal Project:

Remove the pipe culvert under the East Lake Sammamish Trail and replace with a larger capacity culvert or bridge that will be suitable for fish passage, extend daylighting of the creek, and prepare for eventual ELS Parkway culvert replacement.

SITE BACKGROUND

Zaccuse Creek is a small stream that flows from a series of wetlands in the City of Sammamish, down to the eastern shore of Lake Sammamish, Washington. In the lower reaches, the creek flows through several culverts, crossing under the East Lake Sammamish (ELS) Parkway, the ELS Trail, ELS Shore Lane, and along a residential parcel before emptying into the lake. In 2008, the City of Sammamish and the landowner partnered to daylight the lower reach by removing approximately 100 feet of culvert between the lake mouth and ELS Shore Lane and replacing it with a series of shorter, large diameter culverts with natural stream beds. Late-run kokanee now spawn in the restored creek. Since daylighting, late-run kokanee have been observed in the restored creek but spawning has not been confirmed.

IMPORTANCE FOR KOKANEE AND/OR CHINOOK POPULATIONS

Historically, kokanee spawned in Zaccuse Creek; however, it is not well known for its kokanee runs due primarily to its more recent history of confinement and inaccessibility to migrating fish. The recent daylighting project on the lower reach (described above) has shown that it holds high potential for expanding the amount of available kokanee spawning habitat. Despite some sedimentation issues from channel incision in the middle reaches (King County 1994), Zaccuse Creek has excellent water quality because it originates and flows through several wetland areas. The low gradient of the stream above the ELS Parkway is likely to provide high quality spawning habitat, if it were accessible to migrating fish. An estimated 0.25 miles of habitat lies above the ELS parkway before the gradient increase.

LIMITING FACTORS

The culverts located at the ELS Trail and ELS Parkway block access to additional spawning habitat upstream. The potential limiting factors and habitat quality upstream of the ELS Parkway has not been extensively surveyed but is believed to be adequate to support migratory fish use based on an initial site visit and aerial photographs.

PROPOSED ACTION

The project will replace the 36 inch diameter concrete pipe culvert under the ELS Trail with a concrete box culvert that will span the entire flood plain. This project does not address the fish passage barrier posed by the ELS Parkway culvert immediately upstream of the project site. We recommend that this project be designed as part of a larger effort to restore fish passage at the ELS Parkway culvert, and be implemented in conjunction with the trail improvement/widening project.

EXPECTED BENEFITS

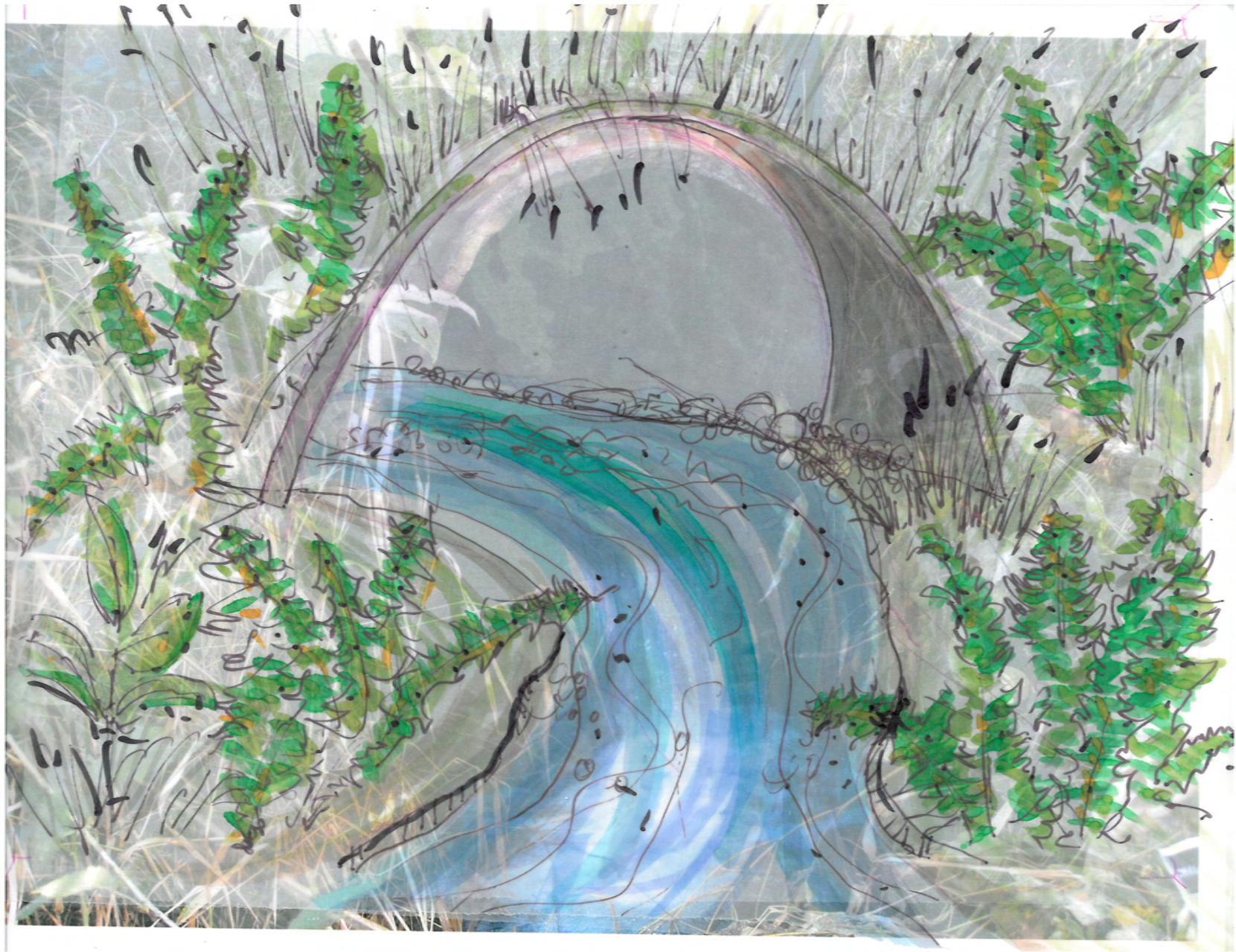
The new structure will result in a natural channel and reduce the risk of culvert blockage and flooding. A natural stream channel will encourage kokanee to migrate upstream and may provide additional spawning habitat. This effort to address fish passage at the ELS Trail culvert and extend the recent restoration work on Zaccuse Creek will encourage other parties to address the ELS Parkway culvert that is also a barrier to spawning kokanee.

SELECTION CRITERIA SCORING MATRIX RESULTS

Category	Basic Question	Scoring Question	Score	Justification
Location	In which stream and reach is the project located? What is the historical and current significance for kokanee and/or Chinook?	What is the historical and current significance of the site for kokanee ?	8	Historical significance not known, but recent restoration has resulted in spawning activity
		What is the historical and current significance of the site for Chinook ?	2	Unlikely to be used by Chinook
Limiting Factors	Would the project address specific limiting factors?	How well does the project address factors limiting kokanee ?	4	Culvert is believed to limit passage, but further study needed under range of flow conditions. Upstream, the parkway culvert is a concern
		How well does the project address factors limiting Chinook ?	1	Unlikely to be used by Chinook
Watershed Context and Condition	Is project success dependent on conditions elsewhere in the watershed?	Do surrounding land uses and/or management strategies lead to constraints (or opportunities) for the proposed restoration? Examples: water quality, sediment, flow regime, fish access, riparian vegetation	4	Parkway culvert is likely a bigger problem so access beyond trail culvert is limited
		Who owns project area and is long-term protection ensured?	10	ELS Trail
		Who owns neighboring parcels? What land uses occur upstream and/or downstream that could be affected by restoration? What risks do those uses pose to the site now and in the future?	8	Private (supportive) downstream; WSDOT Pkwy upstream
Costs	How expensive will proposed action be? What is the likelihood for funding?	What is the order of magnitude cost estimate?	8	Depending on replacement structure
		Are matching funds available?	7	Likely if tied in with trail improvement project
		Are specific grants or appropriations in mind that would be likely to fund this type of project?	6	Trail improvement funds? Fish passage programs?
Socio-Political	What other considerations will determine feasibility of implementation?	Does the project have public support and/or support from the local jurisdiction?	7	The reach downstream has been daylighted and may be slated for continued enhancement
		Does the project have landowner support?	6	Trail committee is planning to make fish passage improvements at certain stream crossings
		Does the project utilize or create public access?	8	on the ELS trail - high profile



Natural bed material is absent from inside the concrete culvert



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