

EBRIGHT CREEK KOKANEE PASSAGE RESTORATION

Location:	Ebright Creek (tributary to Lake Sammamish), King County, WA. WRIA #08.0149
Proposed Action:	Remove fish passage barrier and replace with box culvert; restore in-stream and riparian habitat.
Species Benefiting:	kokanee, Chinook, coho, cutthroat trout



Kokanee/Chinook Restoration Feasibility Assessment in the Sammamish Watershed

Map E - Ebright Creek - Fish Passage Restoration 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

Ebright Creek - Fish Passage Restoration Project:

Replace a fish-blocking pipe culvert with a larger concrete box culvert to allow upstream migrating kokanee access to high quality spawning habitat.

322506 9030

322506 9242

Ebright Creek

Project D Ebright Creek Wetland Enhancement Project:

322506 9008

100

80

140

120

SITE BACKGROUND

The Ebright Creek watershed is located on the east side of Lake Sammamish. The project site is on a residential property, east of the East Lake Sammamish (ELS) Parkway, and approximately 1,200 feet from the mouth. Upstream of the site, the creek flows from its headwaters in a relatively undeveloped tract of low-density residential area on the Issaquah Plateau through second-growth forest.

Downstream of the site, the creek flows through a wooded wetland, crosses the ELS Parkway and Trail via twin 36 inch diameter culverts, and then flows 250 feet along a meadow/forest edge to the lake. Annual spawning surveys have shown the ELS parkway culvert to be passable by kokanee and the patio culvert to be a fish passage barrier (Hans Berge, personal communication).

IMPORTANCE FOR KOKANEE AND/OR CHINOOK POPULATIONS

Ebright Creek is one of three streams in the Sammamish Basin that consistently receives spawning kokanee. From 1996 to 2007, kokanee escapement in Ebright Creek averaged 224 spawners, with a range from 15 to 1,063 (Jackson 2008 as presented in HDR 2009).

Ebright Creek is also important for the emergency supplementation program the USFWS. Kokanee broodstock are collected from Ebright Creek, eggs are incubated and hatched in a hatchery, and fry are released back into the creek in the stream. Instream and riparian habitat upstream of the barrier is some of the last remaining high quality kokanee spawning habitat in WRIA 8. Therefore, restoring access to this habitat is a high priority because it will have a high likelihood of improving the viability of the run.

LIMITING FACTORS

Upstream migrating kokanee are currently blocked from accessing high quality spawning habitat by a man-made barrier. The barrier culvert consists of a steep, twenty foot long, undersized concrete culvert that is encased in a large concrete slab. The slab is finished level on top, topped with brick and is used as a patio. The culvert does not contain any natural stream bed material and has a slightly perched outlet. A concrete-lined overflow spillway with an approximate 2-ft high drop at the downstream end is part of the patio structure from immediately upstream of the slab to immediately downstream, the creek bed elevation drops 4 feet. This structure provides recreational space and pedestrian access across the creek.

In the drier months, the concrete culvert is closed off, the creek water is temporarily ponded in a shallow pool, and the course of the stream is redirected through the overflow spillway. In the wetter months (when kokanee are migrating), flow primarily goes through the concrete culvert, which is a velocity barrier to fish passage. During high flows, the overflow spillway also passes water. In extreme

runoff events, when there is more flow than conveyance capacity through the system, water flows into the owner's basement and down the driveway (Wally Pereyra, personal communication).

No other man-made fish passage barriers exist downstream on Ebright Creek to Lake Sammamish. By replacing the culvert with a structure that allows fish passage, at least 1,500 feet of stream habitat will be opened up to kokanee above this barrier. Fish utilization upstream of this newly available stream habitat is limited only by the natural channel slope and planform.

PROPOSED ACTION

The objective of this project is to remove the man-made fish passage barrier and replace it with a concrete box culvert that allows upstream migrating kokanee to access high quality habitat upstream.

The project will include the following elements:

- Creek flow will be temporarily re-routed around the work area after safely removing any fish that are present.
- Best Management Practices will be used to prevent water quality impacts during the construction and operation of the flow bypass (i.e., work area will be dewatered and discharge will be appropriately treated).
- Culvert and overlying structure will be demolished and disposed of properly off-site. The landowner will have the option to salvage any existing structures on top of the concrete and brick area.
- A concrete box culvert that is a minimum of 12 feet by 4 feet, with retained streambed material, will replace the culvert to allow unimpeded fish passage.
- The landowner has expressed a desire to rebuild the patio surface on the top of the new box culvert.
- The creek immediately upstream and downstream will be modified to improve fish passage and the ability of the creek to pass the anticipated flows and sediment loads, while remaining stable.
- Native vegetation will be planted in the disturbed areas in the immediate vicinity of the stream, since riparian areas of the creek upstream of the site are heavily vegetated with mature native plants, and the project area is bounded by man-made encroachments.

EXPECTED BENEFITS

The project will provide the following benefits: 1) remove a known fish passage barrier and thereby restore access to high quality spawning habitat in areas upstream; 2) double the amount of available spawning area in one of only three streams currently supporting significant kokanee production; and 3) restore in-channel and riparian habitat to approximately 150 linear feet around the disturbed construction area. Furthermore, this project will establish and showcase an effective cooperative partnership with a landowner that supports kokanee conservation, and will support long-term kokanee monitoring efforts.

EBRIGHT CREEK WETLAND HABITAT ENHANCEMENT

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 ?	10	One of 3 most important streams for kokanee in Sammamish Basin. Historical and current spawning. Focus of supplementation efforts.
		What is the historical and current significance of the site for Chinook ?	3	Ebright is not known to contain Chinook spawning habitat. May be some use of the mouth by juveniles.
Limiting Factors	Would the project address specific limiting factors?	How well does the project address factors limiting kokanee ?	10	This passage barrier prevents kokanee from accessing high quality habitat upstream, which represents the most significant limiting factor in this stream.
		How well does the project address factors limiting Chinook ?	1	Chinook are not known to use this stream
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	8	Immediately upstream is forested, natural hillside, posing minimal risk to project.
		Who owns project area and is long-term protection ensured?	8	Private ownership, supportive of project
		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?	7	Neighboring parcels are also privately owned. No guarantee of future protection
Costs	How expensive will proposed action be? What is the likelihood for funding?	What is the order of magnitude cost estimate?	7	Rough estimate of total project cost =\$150K
		Are matching funds available?	8	Local programs and/or landowner contributions are expected.
		Are specific grants or appropriations in mind that would be likely to fund this type of project?	9	Yes. Two USFWS grants
Socio-Political	What other considerations will determine feasibility of implementation?	Does the project have public support and/or support from the local jurisdiction?	10	Well known potential project amongst KWG members and city reps.
		Does the project have landowner support?	10	Yes. Landowner (Wally Pereyra) has been supportive of the idea.
		Does the project utilize or create public access?	2	No. Project is on private property



