Springbrook Creek Watershed Assessment
Executive Summary

FINAL REPORT December 26, 2018 SRFB Project #14-1517

BAINBRIDGE ISLAND LAND TRUST

Bainbridge Island Watershed Council

Wild Fish Conservancy NORTHWEST

CITY OF BAINBRIDGE ISLAND

WASHINGTON STATE Recreation and Conservation Office

DEPARTMENT OF ECOLOGY State of Washington

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Bainbridge Island Land Trust, Bainbridge Island Watershed Council, City of Bainbridge Island, Washington Department of Ecology, Wild Fish Conservancy, and Volunteers

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- Bainbridge Island Land Trust: Projects Committee and Board of Directors
- City of Bainbridge Island: Chris Hammer, Barry Loveless, Rob Grant, Peter Corelis, Marilyn Guthrie, Pam Cienega , Melva Hill (former employee)
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- Washington Department of Fish and Wildlife: Nam Siu, Christy Rains, Justin Zweifel, Michael Blanton Suquamish Tribe: Alison O'Sullivan, Steve Todd
- Washington Recreation and Conservation Office Salmon Recovery Funding Board: Amee Bahr (RCO Project Manager)
- West Sound Watersheds Council Citizens and Technical Advisory Committee

- United States Environmental Protection Agency: Provided NEP funding of Puget Sound Watershed Characterization

- Water Monitoring Volunteers: Sandra O'Connor, Sarah Pearl, Gary Peterson, Barry Sacks, Randal Samstag, Omana Taylor, Roger Williams, Sally Wilmeth, Dallas Young

- Salmon Monitoring Volunteers: Tim Bird, Elizabeth Carr, Brian Copp, Wayne Daley, Katrina Godshalk, John Grinter, Dan Groff, Ellen Gunderson, Curtis Hughes, Lisa Lindsay, Sandra O'Connor, Christine Perk, Janelle Perreira, Bob Ross, Deb Rudnick

- Landowners and Interested Parties: Over 50 property owners within the Springbrook Creek Watershed provided historical context, access to their property, and input on proposed actions. With their participation, the level of knowledge gained about the watershed and landscape was greatly enhanced. Special appreciation to the following property owners who invested a number of hours with the project team on this project include: Ross and Sharon Boundy, Jerilyn Brusseau, Janice Cohen, Claire Cramer, Elizabeth Dequine, Barbara Eddy, Friends of the Farms, Fletcher Bay Estates Homeowners Association, Jeff Glanzrock, Emily Grice, Dan and Linda Groff, Dax Hansen, Joe Hendrickson, Wayne Loverich, Michael Loverich, Lisa Martin, James and Hisako Matsudaira, Rob Ferguson and Kia Micaud, William and Catherine Nickum, Olemara Peters, Ken Rekow and Rosalie Frazier, Brad and Helen Waggoner

Executive Summary

The Springbrook Creek Evaluation and Feasibility (Assessment) Project assessed the condition of Springbrook Creek, its tributaries, and the 999 acre Springbrook Creek watershed. The Project identified limiting factors affecting ecosystem functions; reported on those conditions for planning activities within the watershed; conducted a watershed restoration and protection project feasibility analysis using existing and new data/information, including a significant amount of on the ground field work; and identified and prioritized potential protection and restoration projects addressing ecological health and fish passage limitations in the Springbrook Creek Watershed.

Springbrook Creek is situated on the west side of Bainbridge Island and drains into Fletcher Bay. Within the watershed, there are just over seven miles of stream of which approximately 4.7 miles are typed as fish habitat. Springbrook Creek is one of the largest and most productive salmon-bearing streams on Bainbridge Island and contains one of only two stream reaches on Bainbridge Island designated as Critical Habitat for Puget Sound steelhead. The stream currently hosts populations of a number of fish species including cutthroat trout, coho and chum salmon, sculpin, and Western brook lamprey.

Figure 1. Context of Springbrook Creek Watershed in Puget Sound, on Bainbridge Island and within the Fletcher Bay Watershed

The Springbrook Creek Watershed Assessment came about by recognizing the creek as an important fish stream on Bainbridge Island and that certain actions were needed to care for and improve this resource, but a science-based decision-making matrix to guide near and future term actions was lacking. Following the 2013-2014 Wild Fish Conservancy (WFC) stream surveys (SRFB project 13-1143), which was supported by Bainbridge Island Land Trust, a number of willing landowners provided access to their properties and were deeply engaged in discussions about the history of the stream and current conditions and uses. In 2014 the City of Bainbridge Island proposed two culvert repair projects on Springbrook Creek hoping to use Washington State Salmon Recovery Board funds. As a result of that proposal, the West Central Local Integrating Organization (LIO) and the West Sound Watersheds Council (WSWC) recommended that a systematic assessment and evaluation of the watershed be done to guide prioritization of restoration and protection actions. Given the positive energy that had been expressed by landowners during the 2013-2014 WFC survey and the request of the WSWC, a collaboration of the Bainbridge Island Land Trust, Bainbridge Island Watershed Council, City of Bainbridge Island, and Wild Fish Conservancy was formed resulting in grant proposal being submitted for an assessment project.

The grant was funded in 2014 by the SRFB (Project #14-1517). Work took place from 2015 - 2018. The collaboration of entities that applied for the grant formed the project team that oversaw all aspects of the

project: project management, collection of historical data, collection of and securing new field and analytical data, landowner outreach, volunteer coordination, synthesis of analysis, and formulation of watershed priorities and projects. Washington Department of Ecology was added to the project team to complete a watershed characterization. An abundance of assistance from other stakeholders, landowners and volunteers was provided throughout all phases of project.

This project is West Central Local Integrating Organization Near Term Action WC 15, and therefore a priority of the Puget Sound Partnership Action Agenda, which is the State's directive for recovering listed species such as Puget Sound Chinook Salmon and resident orcas, and for addressing pollution of Puget Sound. It is hoped that projects identified in the assessment will result in local, regional and state financial support.

An important element of the project included landowner and community interaction to learn from those living in the watershed about stream function and use, to engage them in caring for stream and watershed resources, and to share information developed during the project. One hundred and twenty three landowners who lived along the stream were contacted about the project. During the project over 54 properties were visited encompassing over 240 acres. By the end of the project, about 65% of the watershed's stream length was field surveyed (about 4.7 miles of 7.2 miles of stream). Landowners were contacted by mail email, or by phone informing them of the project, and many individual meetings took place. Landowners were invited to join us on the land to show us their property so we could learn from them and learn about the history of the land. Communications with landowners were ongoing throughout the project. Those private lands where projects were identified for conceptual designs had landowners that were deeply involved in and committed to the development of restoration or protection projects. While all members of the project team were engaged with landowners Wild Fish Conservancy and the Land Trust took the lead on these endeavors.

A comprehensive inventory of stream and riparian conditions throughout the watershed was achieved through the project, including a comprehensive inventory of fish passage barriers accomplished by Wild Fish Conservancy and Washington Department of Fish and Wildlife. A total of 46 culverts were identified: 8 on city-owned property and 38 on private property. Of the 30 on fish habitat streams, 10 (33%) were full passage barriers, 15 (50%) were partial barriers, and 5 (17%) were completely unknown passability. None of the assessed culverts on fish habitat streams were found to be fully passable, and about 1.8 miles of fish habitat exist upstream of what are considered full barriers. Additionally, fish utilization and fish presence surveys were conducted by Wild Fish Conservancy and BI Watershed Council spawning surveys.

Water quality and quantity monitoring was performed to identify limiting factors such as temperature, sediment, and fecal coliform. A total of 14 sites were selected and monitored for one or more parameters, with the City of Bainbridge Island and a team of volunteers performing monitoring and data collection tasks.

Additionally, a watershed characterization was performed by Washington Department of Ecology using their Puget Sound Watershed Characterization model (See Appendix I of the full report). This work led to the identification of specific Assessment Units within the watershed in order to provide information on conditions within sub areas of the watershed. The results of this work provided information on the functionality or degradation of important watershed conditions or functions such as areas for sediment sources, water flow, surface recharge, surface water storage and water discharge. The result of this work not only helped understand which areas of the watershed provided which important watershed functions, but also what actions (protection or restoration) might need to occur to protect or improve these functions.

As a result of the all the assessment and on the ground work performed, the Springbrook Creek Watershed Assessment Report contains a compilation of watershed resource information, identifies limiting factors, appropriate, feasible, and cost-effective solutions to address limiting factors in the watershed (see Section 4 of the full report). Many areas of the stream and watershed are in poor or compromised condition.

Restoration opportunities such as removing fish passage barriers and enhancing riparian habitats, evaluating the possibility of returning the stream to its historical path, and protecting intact fish habitat through acquisition or conservation easements were identified as proposed action items for the future. Watershed-wide efforts, such as landowner outreach to share tips for caring for streams and associated vegetation, are also recommended. Prioritization of projects considered the number of limiting factors a project would address, landowner agreement and participation, position of the project within the watershed, and likelihood of success of the project protecting or recovering natural watershed processes.

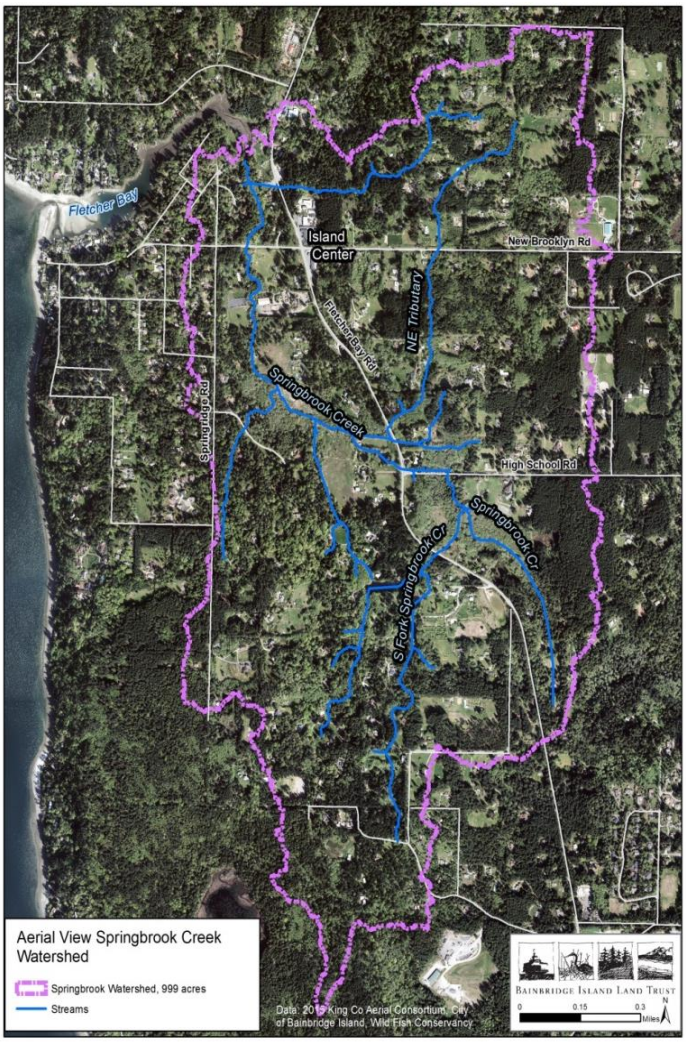

Figure 2. Aerial view of Springbrook Creek Watershed

Conceptual designs for five high-priority projects were created. Project development was a multi-year endeavor and included much on-site consultation with landowners, surveys, development of design options, examining title issues, adjusting designs to meet ecological and landowner concerns, and final drawing and cost estimate compilation. The project design process was led by Wild Fish Conservancy and Bainbridge Island Land Trust and was done in close coordination with landowners, or in the case of the project involved City property, the City of Bainbridge Island. Wild Fish Conservancy and City of Bainbridge Island assisted with on the ground survey work, and when engineered drawings and costs estimates were needed on restoration concepts, Wild Fish Conservancy performed these tasks.

Of the five conceptual designs produced, four involve culvert removal, all five improve riparian conditions, and one project is protection focused. The five conceptual projects are included in Appendix III of the full report, are described below and illustrated on the map below:

Fletcher Bay Culvert and Weir Removal and Stream Restoration Project (Project 1): Removes culvert, weirs and streamside armor and replaces culvert with bridge. Streamside and native vegetation are enhanced for more naturalized stream flow. This project is the lowest in the stream system and addresses the first fish passage barrier in the Springbrook Creek watershed, improving access to over 4.7 miles of stream habitat, while also providing more room for the stream to accommodate high flow events (this culvert receives stream drainage from most of the 999 acre watershed).

Eddy Culvert and Armor Removal, Bridge Replacement, Stream Restoration (Project 2): Removes culvert and streamside armoring with a bridge and enhances the riparian area through invasive plant management and native plant installation. This project addresses the second fish passage barrier fish encounter in the system. This project is just upstream of Project 1 and just downstream of Project 3.

Rekow Stream and Riparian Restoration (Project 3): Removes derelict culvert and improves riparian condition by removing invasive plants and enhancing with more native vegetation. This project is just upstream from Project 2 and downstream from project 4.

Nickum Stream and Riparian Restoration (Project 4): Improves stream and riparian condition through removal and management of invasive vegetation, planting native vegetation and enhancing the stream channel. This project is just upstream of project 3.

Upper Springbrook Protection Project (Project 11 on map): Acquires for protection nearly 23 acres of undisturbed forested wetland, stream and associated riparian habitat in assessment unit 6, which was identified as the area of high priority for protection in the watershed.

A substantial list of other potential actions that would improve stream and watershed conditions in the future were also identified and are included in the report (see Appendix II and Sections 5 and 6 and the map above).

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The Springbrook Creek Watershed Assessment is the first watershed scale assessment conducted on Bainbridge Island. This project may act as a model for future stream and water resource planning efforts on Bainbridge Island.

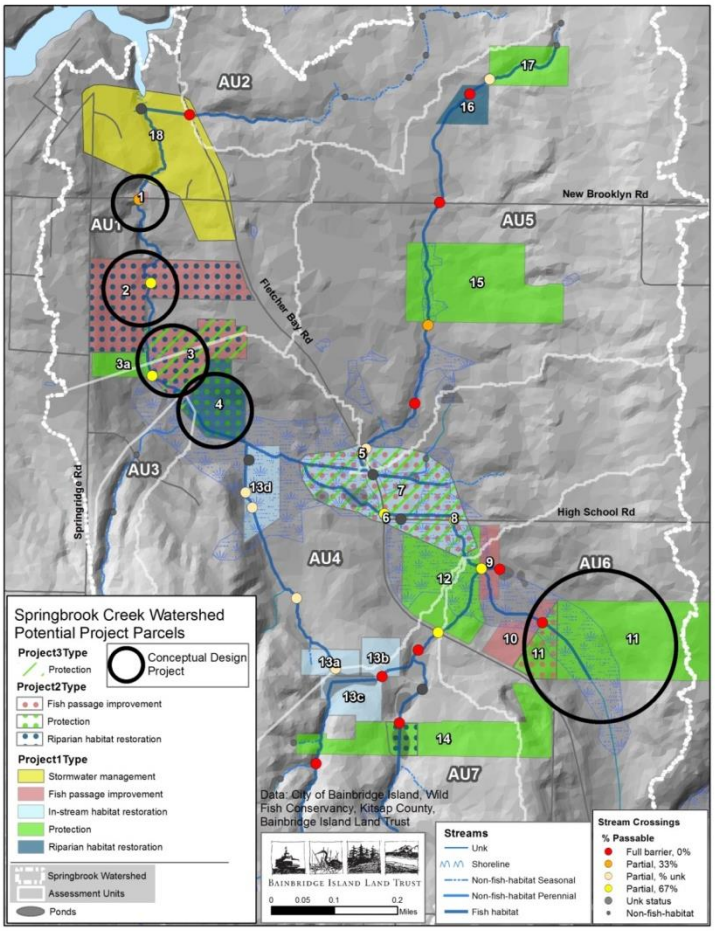

Figure 3 (from the entire report). Location of Conceptual Design Projects

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