



Silver Beach Creek (SBC) Phosphorus Source Control Pilot Project

Lake Whatcom is the drinking water reservoir for the City of Bellingham and the headwaters of Whatcom Creek. The creek flows into Bellingham Bay, the site of an extensive state-approved, ongoing clean-up project.

During the past two decades, monitoring in Lake Whatcom has established a trend of degrading water quality due to high levels of phosphorus

entering the lake. The Environmental Protection Agency listed Lake Whatcom as an impaired water body because low dissolved oxygen levels resulted from the excess phosphorus. The Washington Department of Ecology released a mandated water quality improvement study referred to as a [Total Maximum Daily Load](#) (TMDL). The City of Bellingham and Whatcom County are working cooperatively to develop a TMDL response strategy for delivery to the Department of Ecology in 2010.

What is the Silver Beach Creek Pilot Project?

The City of Bellingham, Whatcom County, Lake Whatcom Water and Sewer District and WSU Cooperative Extension in Bellingham are working together to implement a comprehensive strategy of projects and behaviors in the Silver Beach Creek (SBC) watershed to reduce phosphorus loading into the lake.

Several actions by the City of Bellingham and Whatcom County have attempted to control the phosphorus loading to the lake. To date, success has been limited by several factors including: 1) education initiatives with separate and inconsistent messages, 2) phosphorus load reduction regulations which are not enforced, 3) lack of focused stormwater source control on individual lots, and 4) lack of project-specific monitoring.

The Silver Beach Creek Pilot Project strives to create solutions to these limitations. Successful phosphorus reduction strategies can then be used in the larger Lake Whatcom Watershed.

Why start with the Silver Beach Creek watershed?

This creek is shared by the City and County jurisdictions and has some of the highest phosphorus loading of all the Lake Whatcom tributaries. The project will combine past actions applied generally to the watershed and focus implementation in a sub-watershed; Silver Beach Creek (SBC). Applying the successes of this program throughout the watershed is part of the TMDL response strategy being developed by the City and County.

Project Components

Project elements include education, outreach, enforcement, monitoring, and capital programs.

Education and Public Involvement

Education programs will target the 622 households in the SBC with a combination of stewardship consultations, mailings, and community meetings. Meetings will be held with individuals or small groups of residents to deliver lake stewardship program messages and expectations. These meetings and the stewardship consultations being offered to individuals and groups will focus on the actions each resident can implement to change their impact on the lake's water quality. The main topics of the education program are:

- TMDL requirements and challenges
- Lawn and garden management
- Animal-waste collection and disposal
- Septic-tank maintenance
- Small Farm Plans
- Rainwater catchment and use
- Individual lot stormwater infiltration practices

The use of fertilizers containing phosphorus is already prohibited on lawns and gardens in the watershed. Enforcement of the ban is a major challenge, so far met only through education efforts delivered to watershed residents and retail outlets for lawn and garden products. We will be exploring opportunities to enhance compliance with the ban.

Animal-waste collection and disposal will also benefit from some level of enforcement to augment brochures, volunteer trail monitors and disposal bag stations.

The existing yard-waste collection program for the City will be promoted and enhanced. Actions will include collection events, onsite chipping service, and neighborhood-based composting.

Implementation of enforcement actions will vary for each of the tasks in this program area.

Septic System Inspection and Enforcement

The County Health Department's annual onsite septic system inspection and enforcement actions will focus on the Silver Beach Creek area. The City currently contracts with the County Health Department for the delivery of those services throughout the Lake Whatcom watershed.

Building Permits and Erosion Control

Building permits for construction activities in the SBC include special conditions to control erosion and runoff from construction sites as well as conditions that stipulate percentages of pervious and impervious surfaces and other management practices that reduce stormwater runoff.

Small Farm Plans developed with the assistance of the Whatcom County Conservation District will be monitored and appropriate action taken to ensure implementation of the plan's elements.

Slow the Flow of Stormwater

Stormwater infiltration retrofits will focus on projects that decrease runoff from existing individual lots. Projects will include use of rain barrels, bioswales, removal of impervious

surfaces, increased plantings, soil amendments, infiltration trenches and rainwater catchment and use.

In addition to the phosphorus source control projects included in this proposal, existing City and County stormwater programs will continue to construct stormwater collection and treatment projects on the public portions of the watershed. A focus for city stormwater projects in the SBC watershed will be continuance of the efforts to improve the treatment efficiency of stormwater vaults that service the Silver Beach Creek area. This effort is seeking to find the most effective phosphorus removal medium for use in the vault's cartridges. A focus for the County will be construction of infiltration bioswales at two locations.

Water Quality Monitoring

Long-term storm monitoring consisting of automated samplers and interfacing flow loggers will be used to set up flow-paced sampling collection stations in Silver Beach Creek. Monitoring stations along Silver Beach Creek will be used to track reach-scale changes in three stream sites for fecal, solids, and nutrient loading.

Pre-project storm monitoring for fecal coliform, total phosphorus, total nitrogen, turbidity, and total suspended solids will also occur on storm events. A rainfall recording station will be maintained in the project area.

The project will conduct pre- and post-project monitoring of the Silver Beach Creek mouth site at the location of the USGS stream gauge station (also supported by the City of Bellingham) for the duration of the grant. Parameters of interest will include temperature, dissolved oxygen, conductivity, turbidity and pH at the mouth site.

Stream Channel Restoration and Stabilization

Stream channel stabilization/restoration action will focus on reducing velocities to prevent bank scour and trap sediment, and on riparian planting.

Silver Beach Creek Outreach Program Development

City and County staff worked with a consultant to research existing outreach efforts, survey residents, and conduct focus groups. [The Silver Beach Creek Outreach Program Final Report](#) outlines the results.

Community Conversation

Join the conversation! The Lake Whatcom Cooperative Management is looking for Silver Beach Creek residents to be part of the Community Conversation Event taking place, November 18 from 6:30pm - 7:30pm at Silver Beach Elementary school. This event will kick off the first steps in developing a community partnership that will help plan the outreach and residential support portion of the project.

For additional information contact Clare Fogelsong, Environmental Resources Manager, cfogelsong@cob.org or 778-7900