



Lake Whatcom Policy Group

December 7, 2022 Meeting

Brief Digest of Presentations and Discussion

Policy Group members in attendance: Michael Lilliquist, Skip Williams (Bellingham City Council); Kaylee Galloway, Todd Donovan (Whatcom County Council); Nancy Alyanak (Sudden Valley Community Association).

1. Climate change considerations in Lake Whatcom program activities

In response to questions at the last annual Joint Councils and Commissioners meeting regarding the responsiveness of Lake Whatcom plans to climate concerns, staff have started to compile a list of activities that respond to the changing climate. Many of the actions to protect the lake have climate implications, but these have never been called out specifically in the annual Lake Whatcom Management Program Progress Reports or the 5 year Lake Whatcom Management Work Plans.

The first part of the process will identify current activities that respond to climate concerns. Examples include actions to increase carbon sequestration on forested lands and efforts to get homeowners to reduce of the potential for wildfires on their property. The latter is in response to increased wildfire risk from hotter and drier weather conditions. There are climate implications for the Lake Whatcom Water and Sewer District as well, and new systems are being designed to be able to handle very large storm events. The water district is also looking for ways to reduce its carbon footprint.

Current activities related to climate will be identified in the next Lake Whatcom Progress Report that will come out in March. The second task is to identify future activities responsive to climate concerns that can be added to the 5-year work plan. Both adaptation and mitigation to climate change will be looked at including concerns relating to water supply, water quality, and ecological impacts.

2. Status of lake response model update and TMDL reassessment process

Staff have provided a series of briefings on activities to update the model used by the State Department of Ecology (DoE) to set standards for reduced phosphorus flows into Lake Whatcom as required by the Total Maximum Daily Load (TMDL) for Lake Whatcom. Staff have reviewed what goes into the model and how it is calibrated. Various scenarios will be generated by the model but those are not available yet. Results of the new model are due to be submitted to the Department of Ecology in March of 2024, and work to update the model is ahead of schedule.

Consultants from Brown and Caldwell reviewed the history of the modeling of phosphorus flows into the Lake that inform the TMDL requirements. Dissolved oxygen in the lake has generally been declining since monitoring began in the late 1980's and this triggered requirements by DoE to reduce flows of phosphorus into the lake. The Department of Ecology requires dissolved oxygen to be within 0.2 milligrams per liter (mg/L) of natural conditions.

The original model compared existing phosphorus levels with what it would have been had the lake still been surrounded by forest. That model used limited meteorological data from two years and had limited data regarding stormwater from tributaries so it couldn't capture variations in natural flows into the lake. The original TMDL included a requirement to update the modeling every 10 years with better data to increase its accuracy.

The updated modeling compares existing conditions with forested conditions and estimates the amount of phosphorus reduction needed. Two models are required -- a watershed loading model simulating the flows of sediment containing phosphorus into the lake and a lake model that indicates the response of the lake to these phosphorus flows. A new loading model can simulate current and natural phosphorus flows into the lake for the 1998-2015 period. This shows that there is quite a bit of annual variability of phosphorus flows into the lake and this helps us understand what we need to do to restore the lake under a wider range of conditions.

The original model simulated a partial rollback of land use such that 87% of developed properties needed to act like natural forested land, with corresponding reductions in phosphorus loads, to bring the lake back to the required 0.2 mg/L target. All basins were treated the same.

The TMDL reassessment will utilize a phosphorus/dissolved oxygen response curve rather than a simulated land use rollback. The focus is on the flow of phosphorus which affects dissolved oxygen. Unlike the original model the new model does not assume that areas treated for phosphorus behave the same way as a forest would.

The new response model called CE-QUAL-W2 version 4.5 has a much longer calibration period, 2002 through 2015. The model also simulates organic matter in sediment flows into the lake that can trigger reduced oxygen, as well as meteorological conditions and inflows into the lake. The new model predicts water flow into the lake quite accurately.

The lake response model seeks to model existing conditions, what the conditions would be under natural forested conditions, and to identify the amount of phosphorus reductions under different scenarios of phosphorus reduction. The model also can simulate the volume of water above the specified target under the different scenarios, and the dissolved oxygen deficit by year during the June through October period.

The new model confirms the trend of decreasing dissolved oxygen in the deeper parts of the lake. Next steps will be to refine the response curves and calculate the phosphorus reductions needed to meet the water quality standards. If the model results are more than 10% different than the original TMDL, revised targets need to be resubmitted to the EPA.

3. Homeowner Incentive Program Update

Staff presented an overview and update of the Homeowner Incentive program (HIP) to retrofit residential properties to reduce flows of phosphorus. The first version of the program was in place between 2011 and 2015 and was funded by the city and through a grant from the Department of Ecology. This focused on Basin 1, which includes properties in the City and the County Silver Beach area. The program was City managed but involved both City and County staff.

The second version of the program (HIP 2.0) was city and county staffed and covered properties affecting water flowing into both Basins 1 and 2. This was managed by the County and staffed by both the City and County. The Whatcom Conservation District was contracted to provide direct outreach and assistance to homeowners.

In 2021 the program was changed to reflect different conditions in the City and the County and was expanded to also include Basin 3 at the south end of the lake. Conditions in the City of Bellingham are mostly urban and residential and most properties drain into treatment facilities. Whatcom County areas account for 75% of the watershed population and include a mix of urban and rural areas. Most areas in the County do not drain into treatment facilities.

For the City program, the Whatcom Conservation District provides customer services, and the program has been expanded to target properties with large impervious surfaces. The program also continues to target shoreline, creekside, and large lawn areas. The minimum requirements for treatment have expanded to include either mitigating 25% of the developed area or mitigation of 25% of the lawn areas. The approved Best Management Practices (BMP's) have been expanded to include new technologies.

In 2023 the reimbursement rate is likely to be increased from \$1.30 per square foot of improved area to a proposed \$1.60 per square foot to keep up with increasing project costs. Maintenance rebates are proposed to be made available to properties already treated under HIP, with \$250 rebates for improvements more than 10 years old. Properties treated within 5 years are proposed to get the same rebate amount for activities to respond to drought conditions that killed many plants. Both rebates require the homeowner to sign a maintenance agreement. City goals are to efficiently reduce phosphorus runoff, make TMDL reductions quickly, and to engage with and support watershed residents.

The 2021-22 County program is funded 50/50 by the Flood Fund and the Lake Whatcom Stormwater Utility and has been expanded to include properties in Basin 3. There is a single program for all properties with special options for properties located on the shoreline. There is an option to reimburse labor costs. A maintenance agreement signed by the landowner is required to participate in the program. Interest in the program is greater than staff capacity so there has been a pause in new applications since April 2022.

A new program called Neighborhood Native Landscaping was piloted in 2022 in Sudden Valley. Many homeowners start HIP projects but do not complete them. The Neighborhood Native Landscaping pilot was designed to address many barriers

keeping homeowners from completing projects. Plans, permits, mulch, and plants are provided so there is no reimbursement process.

The neighborhood approach focuses on getting a number of neighbors in close proximity to complete projects and build a sense of watershed stewardship. The neighbors install the plants. Project completion is ensured, which improves return on investment of staff time. County goals are to focus resources to meet TMDL objectives quickly, expand to include neighborhood scale stormwater retrofits, and to fully shift the focus to neighborhood native landscaping. In 2023 the program will continue to focus on the Native Neighborhood Landscape Project model with a larger area (20,000 square feet) being targeted for improvement. The County will also initiate work on retrofits of private neighborhood stormwater facilities.

4. Follow-up from June 1 Forestry Discussion

The Policy Group has expressed an interest in forestry issues and there was substantial interest in the Bessie Sorts timber sale. This agenda item continues the discussion of forestry related issues.

City staff provided an overview of how they manage forest lands on city properties. The acquisition program has two purposes—one is the purchase of the property and the other is improvement and maintenance. An environmental assessment is done before the property is purchased. Each property gets its own management plan. For small properties this is informal but old homesteads or cement slabs can complicate things. There is a restoration component for every property including removing invasive species and replanting with native vegetation, sometimes with the help of Washington Conservation Corp crews. Sometimes conservation easements are arranged with the Whatcom Land Trust, and this includes an annual visit and a report on the condition of the site, guided by the conditions set out in the easement. A city staff person visits most properties a couple of times per year, and if there are active conservation projects there may be daily visits.

Properties that were former commercial forestry properties are often heavily planted and are usually thinned once or twice before being harvested. City management differs in that trees will be left that would not under commercial forestry, including multiple species, snag trees, a variety of tree ages, etc. Unauthorized trails are also removed but some recreation is accommodated. Mountain biking can be a challenge. The city has around 2,500 acres acquired from its acquisition program.

For Whatcom County properties, the County Council just approved funding to develop forest management plans for watershed properties. The county also has former commercial forestry lands and these will be managed to reduce phosphorus loading, improve fire management, and improve habitats. An RFP is being written to develop the management plans and there will be active engagement with local stakeholders to make sure that shared goals are met.

Additional issues the City faces include people dumping trash or setting up sites for parties, cutting down trees illegally, and hazard trees on neighboring properties. Many issues cut across both City and County properties so staff are working together to solve these. The City will be hiring another person to help manage city lands. Lands have to be managed for a number of goals including mitigation, restoration, and conservation purposes in the most efficient way. All lands also have to be managed for water quality.

	<p>The city has fewer recreation properties. The reconveyance lands that the County owns have to be managed for recreation by state law. This does not preclude also managing for water quality.</p> <p>Conversations were held between Department of Natural Resources (DNR) staff and Institute for Watershed Studies staff in October to discuss what types of data are available for examining the impact of forestry activities, including the data time frame, frequency of annual collection, and types of variables. Data the County has from Brown and Caldwell may also be useful. An additional meeting will be held next week to continue exploration of these questions. DNR was open to combining their data on harvesting with other available data to see if the impact of forestry can be detected.</p> <p>Next steps are to put this back on agenda for another Policy Group meeting in June or September, with a focus on examination of the Landscape Plan for DNR lands in Lake Whatcom. The City and County helped develop this plan and it was put before a DNR commission which accepted it.</p>
6.	Discuss possible topics for February 2023 meeting
	<p>Topics for February will include planning for the March Joint Councils and Commissioners meeting and identifying topics and goals for 2022. Additional items will be added by staff and circulated to the Policy Group.</p>