A BEACON OF HOPE: THE 100 YEAR BOWKER CREEK BLUEPRINT

Photo: Browning Park by TracyO

A Beacon of Hope: The 100-Year Bowker Creek Blueprint

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with the Friends of Bowker Creek Society

Overview

Watersheds sustain life. They support the earth's water cycle, where water moves into the atmosphere from soil, plants, and water bodies and then falls back down again as precipitation. Watersheds exist across urban and rural areas, and are essential for human, ecological, and economic health, including tourism, recreation, fisheries, and agriculture.

Thaywun (Bowker Creek) – Songhees History Cairn, Oak Bay Heritage. Artwork by Charles Elliott, Temoseng.

First Peoples stewarded the lands and waters around the Bowker Creek Watershed for thousands of years. By the 19th century, settlers had introduced unsustainable practices that nearly destroyed the watershed until new hope emerged in 2002.

The 100-Year Bowker Creek Blueprint is a precedent-setting, inter-generational watershed action plan developed collaboratively by the Capital Regional District (CRD); the municipalities of Saanich, Oak Bay, and Victoria; and local stewardship and community groups. It aims to restore the 1,850-hectare Bowker Creek Watershed, daylight the Creek, and help natural systems recover and thrive in an urbanized setting.

The Bowker Creek Blueprint serves as a model for local governments across the CRD, British Columbia, and beyond. It's an ongoing, long-term commitment from community, educational, and government representatives to change the trajectory of an urban watershed – from degradation to revitalization – motivated by the common good, to improve quality of life and biodiversity, for the benefit of residents, businesses, and future generations.

Friends of Bowker Creek Society Volunteer, Gerald Harris, with his grandson. Photo credit: Rowens Cristancho

Greater Victoria Watersheds and the Bowker Area

Healthy watersheds filter, absorb, and store water. They remove pollution, slow down the flow of stormwater to reduce flood risks, and store water in the ground, which supports the growth of trees and vegetation. These green spaces, in turn, sequester carbon and provide heat protection, food, and shelter for humans and wildlife. They become biodiversity hotspots along creek corridors.

Maintaining the water cycle through watershed management is vitally important on southern Vancouver Island. Our Mediterranean climate is characterized by dry summers and wet winters. Climate change is also causing more extreme heat, drought, and flood events.

Chum fry hiding in marginal grass.
Photo credit: Friends of Bowker Creek Society

Greater Victoria has over 300 watersheds that capture surface water and nourish streams, wetlands, and aquifers, and eventually drain into the Salish Sea. The natural hydrology of urban watersheds has been modified with engineered pipes, culverts and impervious surfaces like roofs, roads, and sidewalks. When rainwater runs into storm drains, it collects pollutants such as tire toxins, metals, plastics, volatile organic compounds, pesticides, and fertilizers. These contaminants enter waterways and the ocean, impacting animals including invertebrates, fish, amphibians, reptiles, birds, and marine mammals.

Green infrastructure and Low Impact Development techniques store and treat rainwater runoff, reducing peak flows and improving the quality of water that ultimately enters the creek.

The headwaters of Bowker Creek are a spring-fed pond at the University of Victoria, joined by a 1.4 km tributary at Cedar Hill Golf Course. The Creek flows for 10 km through Saanich, Oak Bay, and Victoria, an area occupied by about 30,000 residents, and enters the ocean near Willows Beach. Approximately 56% of the Bowker Creek Watershed is composed of impervious surfaces, and 60% of the main channel is enclosed in underground pipes and culverts.

Rain that falls in the watershed eventually enters Bowker Creek downstream, with its water quality affecting island ecosystems, salmon survival, and public health. Creek restoration and daylighting reduce peak flows during rain events and increase base flows during the dry summer months.

Bowker Creek Watershed History

For thousands of years, Bowker Creek meandered through forests and meadows, with many small tributaries and wetland areas. It was known as Thaywun by the Lək̓ʷəŋən (Songhees and Xʷsepsəm/Esquimalt) peoples. Thaywun, which means coho salmon stream, supported Indigenous communities with fresh water as well as the food they cultivated in surrounding Garry Oak ecosystems and camas meadows (Kwetlal food systems).

Coho and chum salmon spawned in the creek. Nutrients transported from the watershed flowed into a rich marine ecosystem in Oak Bay. A nearby island, Mary Tod Island, was named Kohweechella, which means "where there are many fish."

Near the mouth of Bowker Creek were two Lək̓ʷəŋən villages: one at Spewhung (today's Turkey Head) and another at Willows Beach, which was known as Si•čə'nəɬ (Sitchanalth), named after driftwood lodged in the sands. Longhouses lined the shore and villagers enjoyed a rich life of ecological and cultural wealth, which included Stsnaang and Tlchess (Chatham and Discovery Islands).

European settlers arrived in the 1800s and dubbed Bowker Creek "The Thames" because it was the largest stream in the area. To make way for farms and more settlers in 1850, Hudson's Bay Company officials introduced the controversial Douglas Treaties that tragically displaced Indigenous peoples from their ancestral lands. Bowker Creek took on a new name, after John Sylvester Bowker, an American settler who came to Oak Bay in the 1860s.

By the early 1900s, farm owners had also removed many native trees and plants, and had realigned Bowker Creek along the Shelbourne Valley, draining wetlands to channelize water for agriculture. As late as the 1920s coho travelled up the Creek past Haultain Street, and trout reached as far as the tributaries past Hillside and Shellbourne Streets.

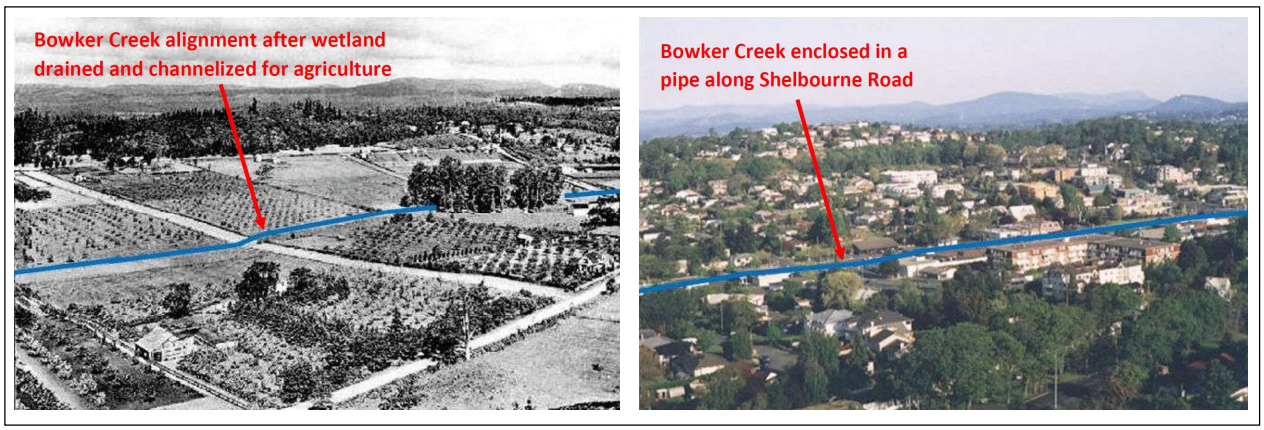


Photo credits: Jody Watson, CRD.

Starting in the 1940s, however, farms were replaced by more impervious surfaces, housing, and shopping centres with little regard to protecting habitat.

The increase in development with impervious surfaces resulted in critical habitat loss and reduction in water flow and quality. A 1958 Times-Colonist article by C. B. Fisher summarized the state of Bowker Creek: "The creek might be quiet this coming winter. It must have been before the land was cleared; when salmon used to go up and thick vegetation grew along its banks, and youngsters swam in the pools of crystal water: Now the balance of nature has been lost. It takes a lot of poetry in a man's heart today to hear it sing its way through the cement arches. It is a sad sack of a creek, shorn of its beauty, slipping back to a mere trickle of polluted and frustrated water. "

As recently as the 1970s, a "beautification" program saw the banks and channel bottom of the creek walled in with rock and concrete.

Turning Point for Bowker Creek

A turning point for the Bowker Creek Watershed came in 2002, when a critical mass of people and interests came together. Rob Miller, former Supervisor of the CRD Stormwater Quality Program, had two challenges at the time: decide how to solve regional water quality issues, and choose which watershed to focus on first. A top priority for selection was that the surrounding community had to be ready and supportive of action.

The efforts of Ian Graeme and the Friends of Bowker Creek Society put Bowker at the top of the list. A 2021 report by the Partnership for Water Sustainability in BC stated, "Over time, two individuals stand out for the leadership roles they have played. Without the determination of Ian Graeme, there is no Bowker Creek Initiative. Without the passion and persistence of Jody Watson [CRD Coordinator] to hold it all together, there is no Blueprint."

With the strong support of community members and local governments, the CRD initiated a public forum in 2002 to develop a collective Vision Statement for the Bowker Creek Watershed: *The varied human uses and natural areas in the Bowker watershed are managed to minimize runoff and pollution, making Bowker Creek a healthy stream that supports habitat for native vegetation and wildlife, and provides a community greenway to connect neighbourhoods.*

This watershed forum also led to a watershed management plan in 2003, and in 2005, the launch of the Bowker Creek Urban Watershed Renewal Initiative (BCI). A BCI Steering Committee supported implementation of the watershed plan and included members from the CRD, Saanich, Victoria, and Oak Bay: community members as well as staff from the planning, environmental, and engineering departments.

By 2010, the BCI released the 100-Year Bowker Creek Blueprint. It integrates environmental, social, engineering, and land use factors to provide a more holistic approach to the restoration of creek and the entire watershed within the context of an urban area. Saanich, Victoria, and Oak Bay Councils have formally endorsed the Blueprint.

The BCI steering committee is currently made up of the following partners: the CRD, District of Saanich, City of Victoria, District of Oak Bay, Friends of Bowker Creek Society, University of Victoria, School District 61, and Community Associations including Quadra Cedar Hill, Mount Tolmie, Oak Bay, Camosun, and North Jubilee.

Volunteer builds beds for 30,000 chum eggs in an Oak Bay segment of Bowker Creek.
Photo credit: Gerald Harris

Bowker Creek Watershed Goals and Priorities

The 100-Year Bowker Creek Blueprint applies "sponge city" concepts and contains plans for adding blue-green infrastructure on public and private lands: daylighting the creek, increasing soil volumes, installing bioswales, and planting native trees and shrubs in rain and pollinator gardens.

Without these actions, the cumulative effects of an increasing percentage of hard surfaces would result in watershed degradation, and more destructive heat, drought, pollution, and flooding. Priorities include:

- ***Requirements for New Urban Developments:*** Adopt requirements to reduce impervious areas, and incorporate natural infrastructure and watershed goals at the start of any project.
- ***Land Use Planning:*** incorporate proposed Bowker Creek Watershed greenways.
- ***First Nations Engagement:*** Consult communities early in the planning stages for restoration, daylighting, or land acquisition.
- ***Municipal Plans and Strategies:*** Incorporate Bowker Creek Watershed goals.
- ***Boulevards:*** Construct infiltration and retention features.
- ***Restoration:*** Develop ecological corridors within the Bowker Creek Watershed, leveraging native plants and urban Garry Oak ecosystems. Increase daylighting opportunities in areas like Lansdowne South school campus, Shelbourne Valley, Oak Bay Recreation Centre, Firefighter's Park, Doncaster Drive, and Christmas Avenue wetlands.
- ***Engagement With the General Public, Governments, and Developers:***
    - Developer's Guides and Homeowner's Guides
    - Watershed tours for citizens, government staff, and politicians
    - Watershed model and interpretive display at community events
    - Interpretive signage and channel markers
    - Creekside concert series and art displays

Eve Henrich and Soren Henrich build the 3D Bowker Creek Watershed interpretive display. Photo credit: Soren Henrich

- ***Land Purchases:*** Protect critical land in the watershed.
- ***Climate Change:*** Include climate change adaptation and mitigation in all activities.
- ***Standardized Natural Asset Management (NAM) Language:*** Streamline NAM government decision-making processes by recognizing the value of ecosystem services and climate resilience.
    - **Flood and Stormwater Management and "Sponge City" Principles:** Reduce city infrastructure and insurance costs, and prevent property damage, by slowing rainwater that enters drains, pipes, and culverts during storm events. Increase soil volume, trees, and shrubs around new developments to absorb the impact of heavy rainfall events and filter urban run-off.

- **Reduction in Urban Heat Island Effects:** Reduce water use, and improve drought protection, by increasing water retention in soil, which improves the survival of trees, shrubs, and wildlife. Lower city temperatures during heat waves with trees and gardens, which also protect people, pets, and biodiversity, and improve walking and active transportation.
- **Public Health and Recreation:** Increase physical and mental health, and create more livable neighbourhoods, with blue-green networks of ecological corridors for both people and wildlife.
- **Biodiversity, Pollination, and Water Quality:** Filter pollution from impervious surfaces to increase wildlife survival and their food sources on land, in waterways, and in marine environments. Support pollinators for food security with native plants.
- **Economic Development:** Attract more residents and visitors to blue-green spaces to see wildlife including salmon, birds, and other animals.
- **Cultural Heritage and Educational Opportunities:** Recognize Indigenous history with Kwetlal food systems and salmon runs, and increase biodiversity stewardship.

Bowker Creek Initiative Accomplishments

Photo credit: Friends of Bowker Creek Society

The BCI and its partners work on a variety of projects:

- The 1000 Rain Gardens Project aims to build rain and pollinator gardens throughout the CRD on public and private lands. This is a partnership between Friends of Bowker Creek Society and Peninsula Streams Society's "Rain Gardens for Headwaters" program.
- In 2007, 300 metres of the Bower Creek Greenway was completed in the Shelbourne Valley
- In 2015, Bowker Creek at Oak Bay High School was transformed into a healthier riparian corridor with native plants, accessible public greenspace, and an outdoor classroom. Flooding has decreased downstream, and biodiversity has increased with more birds and other wildlife.
- In 2019, 2.2 hectares of land was acquired in Saanich to establish the Kings Community Nature Space, which includes about 230 metres of Bowker Creek
- In 2020, Friends of Bowker Creek started the community science initiative, Chum Salmon Recovery Project to restore chum salmon to the lower reaches of Bowker Creek.
- Technical studies: 2007 Master Drainage Plan, 2007 Property Functioning Condition Assessment, 2020 Daylighting Feasibility Study, 2023 Bowker Creek Restoration Needs and Prescriptions
- 2021 Framework for Collaborative Inter-Municipal Watershed Implementation

- Low Impact Development measures including raingardens, bioswales, and green roofs
- Ongoing invasives removal and habitat restoration at Bowker Creek Walkway, Browning Park, Cedar Hill Golf Course and Park, Kings Road Community Nature Green Space, Oak Bay High School, Monteith Street, and St. Patrick's School areas.
- Contributions to Official Community Plans, urban area plans, and bylaws. For example, the "Bowker at Bee" daylighting project at the Oak Bay Recreation Centre is listed in Oak Bay's municipal project plans. Saanich is also incorporating watershed maps and studying daylighting opportunities in the Shelbourne Valley.

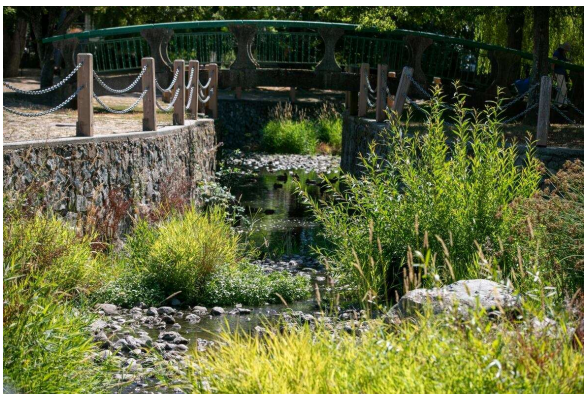


Photo credit: Mike McArthur, CBC

Keys to Success: Collaboration, Partnerships, and Measurable Goals

BCI emphasizes the importance of collaboration and trust-building among the various interests and partners to achieve watershed goals. This fosters a strong network of people needed to achieve restoration on both public and private lands.

Success relies on placing community values front and centre through partnerships with community representatives, businesses, and government staff.

All interests and partners come together to help define key actions, deliverables, and visualizations. Goals then turn into priorities and timelines for daylighting the creek, installing rain gardens, incorporating sustainable development into new urban plans and street designs, and monitoring water quality and flows.

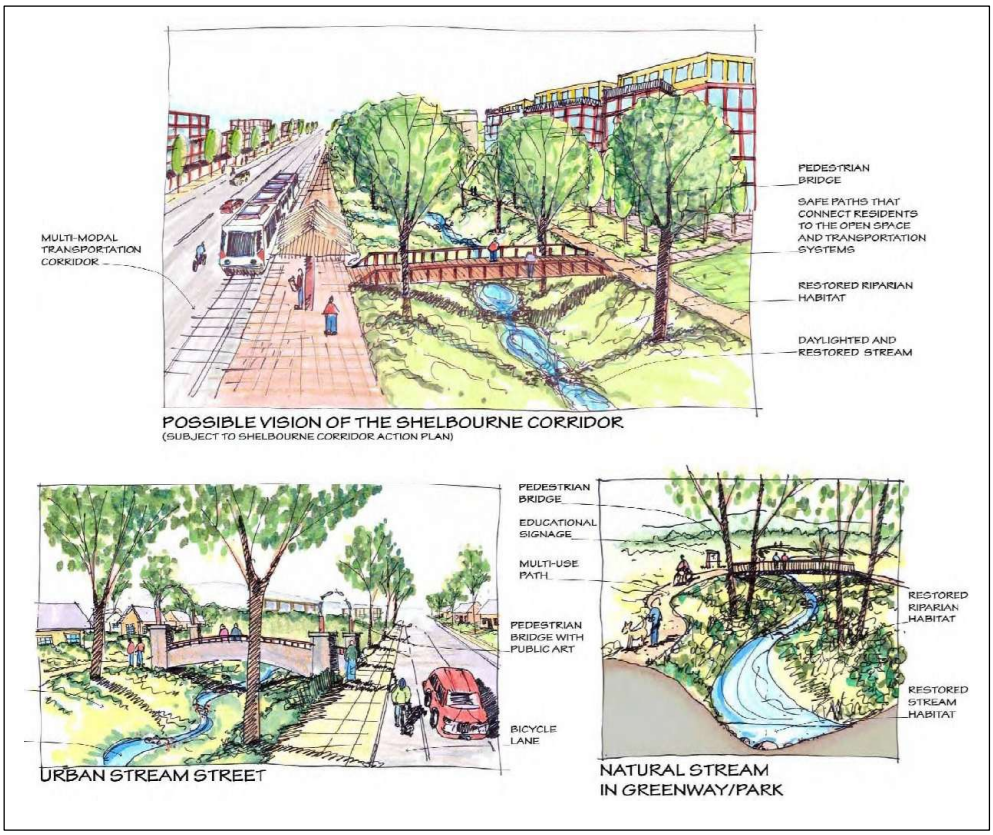
For example, the Friends of Bowker Creek Society's goals are to "restore Bowker Creek from an urban storm sewer, invisible through 60% of its length, into an open-air vibrant salmon stream within a corridor of urban forest, providing green space to surrounding neighbourhoods, working in partnership with the municipalities and communities along the creek's length."

"The vision statement has guided the collective actions of the BCI since 2004. Our challenge, and our focus, has been on how to give these words real meaning so that we have tangible outcomes," stated Jody Watson, BCI Past-Chair, in 2010 upon Blueprint completion.

"Even with the vision and management plan, municipal staffs were still missing the details of how to achieve that vision particularly when dealing with redevelopment on a lot-by-lot basis. They knew that

the plan called for a community greenway, but there was no detail on where that greenway should go, or which parts of the creek need restoration.

"The Bowker Creek Blueprint now provides detailed 'how to' and 'where to' guidance to assist municipal staff, developers and the community in achieving the long-term vision. The Blueprint moves past the motherhood statements contained in most management plans to concrete on the ground actions."



An Ongoing Project for Current and Future Generations

Other governments can now apply lessons learned with Bowker to other watersheds so they don't have to reinvent the wheel, saving time, effort, and money. Kim Stephens, P.Eng. commented in 2014, "The Blueprint is provincially significant … It is also inspirational. In my 40-year career as a professional engineer, there is nothing that equals it. And the reason it is so important is that it gave the rest of us a vision of what can be."

Environmental planner, Adriane Pollard, added, "Where there is a stream that could support fish life and residents can see the creek flowing through their neighbourhood, they get excited about nature in the city."

Author Michael Lewis's quote about public service is a fitting tribute to all partners involved in the Bowker Creek Watershed: "It is a calling. They do not need other motivations when what they do is the right thing to do. We need to honor these people. We would tease more out of the population if we created a culture of recognition around what it means to embrace shared responsibility."

Resources

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