

Request for Support Application to the City of Nanaimo

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Organization Background

The British Columbia Conservation Foundation (BCCF) focuses efforts on restoring, perpetuating and expanding fish populations within healthy aquatic ecosystems. BCCF's mission is "To promote and assist in the conservation of the fish and wildlife resources in the Province of BC through the protection, acquisition and enhancement of fish and wildlife populations and habitat." The BCCF Aquatic Research & Restoration Centre conducts a variety of research, stock assessment, habitat restoration, and water monitoring projects across Vancouver Island, with efforts focused along the east coast of the Island. BCCF has expertise in conducting projects in collaboration with a wide range of partners, including local First Nations, environmental and stewardship groups, academic institutions and all levels of government (local, regional, provincial, federal and First Nation). BCCF recognizes the value of partnerships to undertake and successfully implement multi-faceted programs.

Program Overview

Discovered in 2020, a tire wear toxin, N-(1,3-dimethylbutyl)-N-phenyl-p-phenylenediamine-quinone, commonly referred to as 6PPDQ, was found in roadway runoff and identified as the cause of 'urban run-off mortality syndrome' (URMS) in multiple salmonid species. In particular coho salmon (*Oncorhynchus kisutch*), can succumb to URMS within a matter of hours when exposed to part-per-trillion concentrations. Now recognized as one of the most lethal toxicants known to fish, more attention has been paid to understanding and monitoring for 6PPDQ with the intention to mitigate effects and protect salmon.

Since 2023, the BCCF and Vancouver Island University's Applied Environmental Research Labs (VIU AERL), in partnership with 35 local First Nations and volunteer-led stewardship groups, have been undertaking a 6PPDQ monitoring program across the east coast of Vancouver Island. Through this program, the project team has identified areas of concern that would benefit from mitigation efforts.

Current investigations have found rain gardens to be effective tools in filtering 6PPDQ and other harmful pollutants from stormwater runoff, ultimately reducing the amount of these pollutants that are able to make it into local fish bearing streams. Rain gardens provide a host of co-incidental social benefits including natural habitat, erosion control, and aesthetic values.

The [EcoAction Stream 1: Community-led freshwater action across Canada](#) fund aligns well with the installation of rain gardens to remove/reduce the amount of toxic/polluted waters that are making their way to local, urban waterways. BCCF/VIU AERL are applying to undertake the following:

1. Work with project partners to design and install rain gardens (number is to be determined) in locations that have been identified as areas of concern with regard to 6PPDQ;
2. Evaluate the effectiveness of these rain gardens at removing 6PPDQ;
3. Establish best practices in construction and maintenance of rain gardens, and
4. Host a 1-day workshop targeted at sharing information about green infrastructure and mitigation strategies that are effective at removing 6PPDQ.

Ultimately the number of rain gardens that can be installed will be dependent on the amount of funding that we can apply for. It is anticipated that each rain garden will cost between \$10,000 to \$20,000 to construct and plant, depending on their size and the amount of in-kind support (i.e., donated supplies, volunteer labour, etc.) that we can generate.

If we're successful in the grant application, there are currently three groups that we have identified as potential project partners in the Nanaimo region on this initiative: Departure Creek Streamkeepers, Walley Creek Streamkeepers, and the Nanaimo Area Land Trust. We have worked closely with all three groups as part of the 6PPDQ monitoring efforts over the past couple of years. All of these groups have collected samples in their respective watersheds that have surpassed the recently released [6PPDQ Water Quality Guidelines](#) by

the Province multiple times; all this data can be found on the [BCCF/VIU data dashboard](#). Specific sites in the Departure Creek, Walley Creek, Cat Stream, Chase River, and Beck Creek watersheds have not yet been finalized, as we want to work with the City of Nanaimo and community partners to ensure consultation on site locations and designs.

The one-day workshop will be an opportunity to engage with community groups and public works departments and mobilize knowledge gained to a wider audience. The goal of the workshop will be to provide the community with the tools and network to work towards building rain gardens in their local watershed.

Currently, the project team is not aware of any other similar programs that exist within the City of Nanaimo or of any other organizations applying for the same funds.

City of Nanaimo Request

At this point, we're looking for general support in principle for the project application, as well as any in-kind support that the City of Nanaimo would be able to provide (i.e., staff time for site discussions/permit approvals/site design/on-site assistance). It is anticipated that two to three of the constructed rain gardens will be installed in the City of Nanaimo because of this project.

An initial request was submitted to Bill Sims (General Manager, Engineering & Public Works for the City of Nanaimo) at which time he expressed interest in supporting site selection and rain garden design for this project. He directed the BCCF to the Council Support Policy COU-237 to put in the request for a letter of support.

Project Funding Sources

The primary request is going to EcoAction Stream 1: Community-led freshwater action across Canada. Additional matching funds (1:1) have been requested from the Pacific Salmon Foundation (cash) and our other project partners (in-kind; see "Coordination With Other Entities" at the end of this document).

Target Groups Served

The proposed rain garden program is intending to build two to three rain gardens within the City of Nanaimo. These rain gardens would be part of a larger initiative that will be targeting the implementation of rain gardens in 6PPDQ-impacted areas between Duncan and Campbell River; the project team is seeking support from the municipalities and regional districts throughout the study area for support with this application. The program is not intended to extend to Victoria due to a partner organization's (Peninsula Streams and Shorelines) ongoing rain garden program.

Specific to the Nanaimo area, we are proposing to work with volunteers associated with Departure Creek, Walley Creek, and Cat Stream in Nanaimo. We anticipate that there will be 5 – 10 volunteers involved at each constructed site; they will contribute to the construction and planting of these rain gardens.

Proposed Program Timeframe

The anticipated timeline for this project would be that preliminary discussions around site selection, site design, and initiating any necessary permit applications would occur in the 2025-2026 fiscal year, with the actual installation of rain gardens beginning in the summer of 2026 or 2027 (timelines will become dependent on approvals from landowners).

Once established, it is expected that the rain gardens will require minimal maintenance to remain functional. BCCF anticipates working with stewardship groups in the years to come to conduct any routine maintenance of the gardens (e.g., refreshing mulch, pulling and replanting expired plants, etc.), as needed.

Anticipated Program Outcomes

In addition to removing harmful toxins, rain gardens have a variety of other benefits that directly improve freshwater habitats and combat climate change. For example, they are known to allow 30% more water to infiltrate into groundwater than a typical lawn; therefore, during heavy rainfall periods, they can help alleviate pressure on the stormwater infrastructure and during droughts, they are able to hold more water interstitially.

Additionally, rain gardens are a low-carbon infrastructure, as they have been shown to absorb carbon dioxide.

In addition to the environmental benefits in the locations that rain gardens are installed, we anticipate that engaged volunteers will gain a better understanding of the benefits of green infrastructure and potentially implement some of what they've learned on their own properties.

Proposed Budget

Currently, the project team is intending to request ~\$80,000 from the EcoAction (this may increase if further in-kind funding is committed) and \$50,000 from the Pacific Salmon Foundation. In addition to these funders, BCCF will also apply to the Habitat Conservation Trust Foundation in the fall of 2025 for additional financial support. The amount of funding granted will determine the number of rain gardens that can be installed.

Coordination With Other Entities

To date, the organizations identified in table 1 have been invited to provide support to the project. The table also indicates whether that organization has confirmed support for the project or not. Requests were sent to organizations on February 27, 2025.

Table 1. List of organizations approached to provide support to the proposed EcoAction Stream 1 application in March 2025.

Organization Name	Contributed Support to Existing 6PPDQ Program (Yes/No)	Confirmed or Pending Support for EcoAction Stream 1 Application
A'Tlegay Fisheries Society	Yes	Confirmed
City of Campbell River	Yes	Pending
City of Courtenay	No	Pending
City of Nanaimo	Yes	Pending
City of Parksville	No	Pending
Campbell River Environmental Committee	Yes	Confirmed
Comox Valley Regional District	No	Pending
Departure Creek Streamkeepers	Yes	Confirmed

Greenways Land Trust	Yes	Pending
Mid Vancouver Island Habitat Enhancement Society	Yes	Confirmed
Millard Piercy Watershed Stewards	Yes	Confirmed
Morrison Creek Streamkeepers	Yes	Confirmed
Nanaimo Area Land Trust	Yes	Pending
Pacific Salmon Foundation	Yes	Pending
Peninsula Streams & Shorelines	Yes	Confirmed
Regional District of Nanaimo's Drinking Water & Watershed Protection Program	Yes	Pending
Save Simms Creek	Yes	Confirmed
Snuneymuxw First Nation	Yes	Confirmed
Town of Qualicum Beach	No	Pending
Qualicum Beach Streamkeepers	Yes	Confirmed
Vancouver Island University	Yes	Confirmed
Walley Creek Streamkeepers	Yes	Pending
We Wai Kai First Nation	Yes	Confirmed