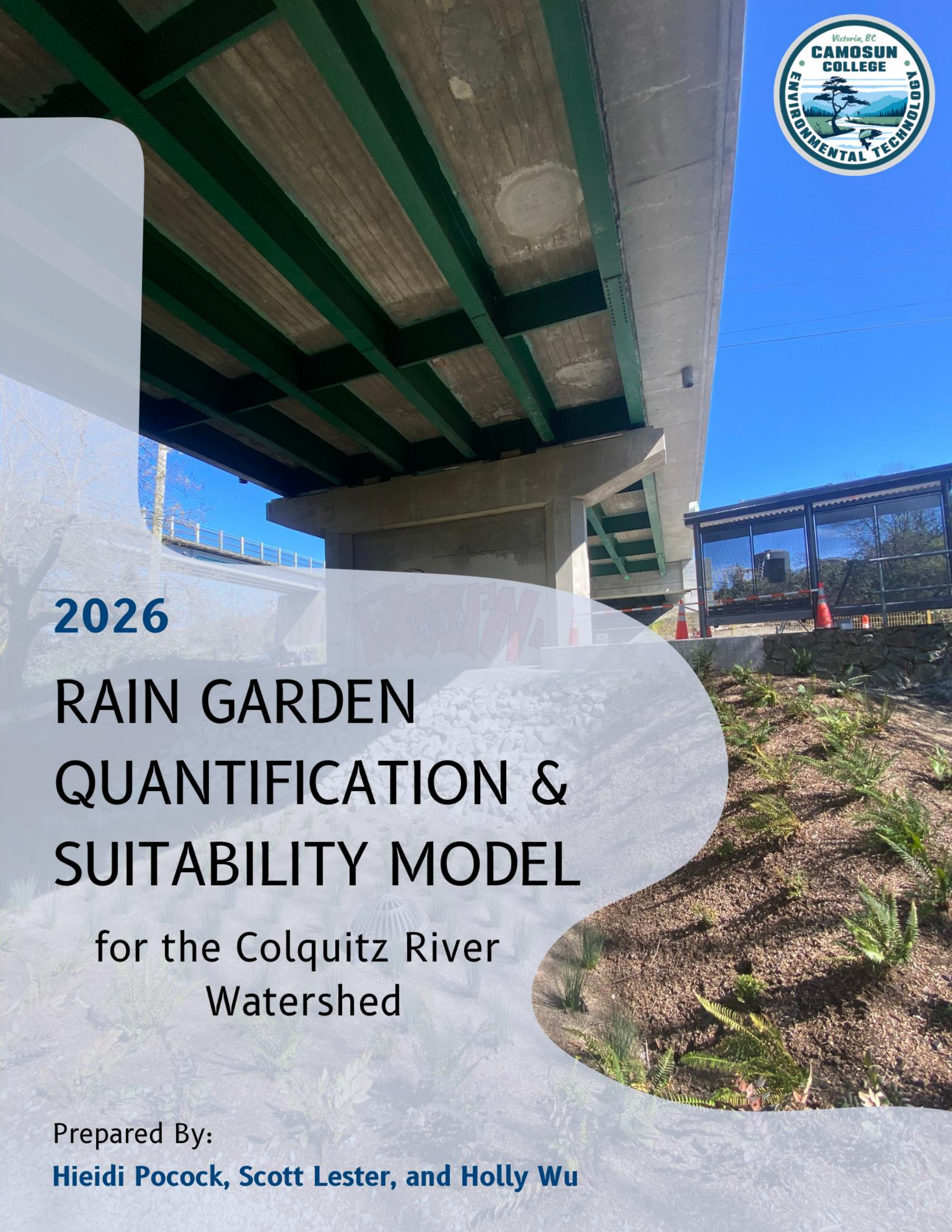

2026

RAIN GARDEN QUANTIFICATION & SUITABILITY MODEL

for the Colquitz River Watershed

Prepared By:

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Land Acknowledgement

We respectfully acknowledge the traditional territories of the lək̓ʷəŋən (Songhees and Kosapsum) and W̱SÁNEĆ peoples, who have stewarded these lands and waters since time immemorial. We thank them for allowing us to work, learn, and study on their territories.

Land acknowledgements are an important precedent for how we approach these deep social ties. However, our personal responsibility extends into a more nuanced understanding of Canadian history and how the harmful practices of colonialism have caused our society - and nature - to fracture.

For countless generations, the W̱SÁNEĆ and lək̓ʷəŋən people have cultivated a strong relationship with the land and its waters based on values such as individual responsibility, keen observation, and oral tradition. Appreciating this relationship is vital for both stewardship and reciprocity.

Executive Summary

In recent years, the tire additive 6PPD and its reactive product 6PPD-Q have been identified as the primary toxicant causing mortality in coho salmon and other salmonid species. This can have devastating effects on ecosystems, as well as economic and cultural impacts. Researchers, governments and communities have been making a concerted effort to try and prevent 6PPD-Q from entering our waterways. One proven method is the implementation of rain gardens.

Around the Victoria's Capital Region District, programs such as "Rain Gardens for Headwaters" and the "1000 Rain Gardens Project" have been educating communities and implementing rain gardens throughout to help filter out toxicants from roadways. Previous research has shown that rain gardens can filter up to 90% of 6PPD-Q out of stormwater effluent. Therefore, rain gardens are most effective if implemented near roadways or areas with large impervious surfaces that lead to stormwater infrastructure and eventually drain into salmonid bearing streams.

To assist municipalities in determining where rain gardens are most effective, a suitability model was created to identify high priority areas specific to the Colquitz River Watershed. Provided accurate data can be obtained through local, provincial, or federal databases, this model can be used to identify high priority areas for the implementation of rain gardens in other watersheds.

The predictive model was developed by integrating decade-long observation data of at-risk salmonid species with advanced hydrological mapping. By synthesizing digital elevation models, stormwater infrastructure data, and satellite-derived land cover analysis, we identified critical runoff zones. This multi-layered spatial approach enabled the classification of the Colquitz River watershed into low-, medium-, and high-priority management areas based on 6PPD-Q exposure risk.

To confirm the validity of the model, samples were collected from stormwater outlets and processed by Vancouver Island University's Applied Environmental Research Laboratory. The highest concentration recorded was 301ng/L, which is more than 3x the lethal limit to coho salmon. This sample corresponded with a high priority area identified on the ArcGIS model. The direct correlation between these lethal field concentrations and the model's priority zones confirms the tool's reliability as a framework for municipal planning. This scalable methodology provides a blueprint for identifying critical runoff zones across other watersheds, allowing for the strategic implementation of rain gardens to intercept toxic runoff before it impacts sensitive salmonid habitats.

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Introduction

In 2020, researchers from the University of Washington discovered a toxic chemical entering Pacific Northwest waterways with the molecular structure *N*-(-1,3-dimethylbutyl)--*N'*--phenyl-p-phenylenediamine-quinone (6PPD-Q) (Tian et. al., 2021). The parent compound, 6PPD, is an antiozonant added to rubber during the manufacturing process to prevent tires from cracking or thermal oxidative degradation upon contact with reactive oxygen species (O_3) in the atmosphere (Tian et al., 2021; Hua & Wang, 2023). To prevent breakdown of tires, the 6PPD diffuses to the tire surface to react with ozone, creating a protective barrier, and forming 6PPD-Q (Tian et al., 2021). This chemical builds on the road surface as microplastics called tire wear particles (TWPs), where they are then washed away during precipitation events and end up in the hydrological system through storm water infrastructure.

Tian et al. (2021) identified 6PPD-Q as the primary toxicant in urban runoff mortality syndrome (URMS), which poses a high risk of fatality to salmonid species - particularly coho salmon *(Oncorhynchus kisutch)*. They highlight that in highly urban areas with impervious surfaces, coho salmon may experience a mortality rate of 40-90% before spawning (Tian et al., 2021). In their research, they were able to identify the median lethal concentration (LC_{50}) of 6PPD-Q to juvenile coho salmon as 790ng/L (revised to 95ng/L in 2022). The toxicant can kill susceptible species within only a few hours if concentrations are high enough, such as after a long dry spell followed by >10mm rain. Brinkmann et al. (2022) identified mortality in other important fish such as rainbow/ steelhead trout and brook trout; and further studies have identified vulnerabilities in chinook salmon, coastal cutthroat trout and lake trout (British Columbia Conservation Foundation & Vancouver Island University, 2025). Thus, urgent action must be taken to prevent massive die-offs of these critical keystone species.

On Vancouver Island, the British Columbia Conservation Foundation (BCCF) and Vancouver Island University's Applied Environmental Research Laboratories (VIU AERL) began assessing the effects of tire wear toxins (TWTs) and spearheaded a sampling network on the east coast of Vancouver Island in 2022 ("Home - tire wear toxins", n.d.). The east coast of Vancouver Island hosts many coho populations returning to spawn and is where the major cities of the Island are located. Thus, the sampling network is imperative to monitor the effects of TWTs and 6PPD-Q in our waterways.

While research into a replacement for 6PPD is ongoing, biotechniques have been identified to reduce the impact of 6PPD-Q on salmon bearing streams (Rodgers et al., 2023). Rodgers et al. (2023) conducted a full-scale 6PPD-Q spike and recovery test with bioretention cells, or "rain gardens" and found up to 90% of 6PPD-Q may be retained in the soils. Therefore, Green Stormwater Infrastructure (GSI) such as rain gardens and bioswales provide an interim solution that can be implemented immediately to reduce 6PPD-Q entering our waterways and protect vulnerable species (Rodgers et al., 2023). GSI is known to both reduce economic and ecological stress. Bioswales can also provide filtration but have the additional purpose of redirecting rainwater into stormwater inputs. Ideally, a mixture of both rain gardens and bioswales would provide the greatest overall benefits to urban areas.

Objective

In the Capital Region District, the municipality and many community partners have been promoting and implementing rain gardens. Peninsula Streams Society has the “Rain Gardens for Headwaters” program which aims to educate the community in how to plant rain gardens and make them more commonplace around the city (Peninsula Stream Society, 2023). The purpose of this report is to provide a model for identifying high priority rain garden suitability, which, when used effectively, will enhance food security and economic strength across the region. This report focuses on the Colquitz River watershed, that often sees coho and cutthroat trout returns. However, provided that accurate, quality data is accessible, the model can also be applied in any geographic locale.

Methods

Sampling

To determine “at-risk” areas, the following ArcGIS layers within the Colquitz watershed were accessed using iMaps BC, CRD Maps, Camosun College, and Saanich Maps:

- Fish observations
- Saanich stormwater infrastructure
- Roadways
- Rivers

We analyzed areas where stormwater infrastructure intersected with recent (<10 years ago) salmonoid bearing streams and visited each site to make observations about the nature of the outfall, surrounding vegetation, stream complexity, bedload, and surrounding land use (i.e. park, roadway, walking trail).

Once initial observations were made, 5 of the most “at-risk” sites were chosen for sampling. What makes a site higher risk includes a high density of surrounding impervious surfaces, as well as high vehicle traffic zones and clear, healthy salmon habitat.

Gear required for sampling includes:

- Sampling pole

- Amber Glass collection jars (100mL) with QR code
- Deionized water
- Cooler with ice packs
- Nitrile gloves
- Field notebook/ pencils
- Phone with Field Maps Form
- Data Collection Sheed from TireWearToxins
- GPS

The following steps were followed in 6PPD-Q sampling:

1. Gear was obtained from Peninsula Streams Society.
2. An outfall was located during a heavy rainfall event for the best sampling as stormwater is flushed down into the body of water in high quantities.
3. An amber glass jar was connected to the pole for easy and safe reach of water collection.
4. The amber glass jar was washed in the body of water 3 times to clean out any unwanted particles.
5. The amber glass jar was filled with water and sealed while wearing nitrile gloves so as not to contaminate the sample. The QR code was scanned, and information about the sample was inputted into the VIU AERL data sheet.
6. Samples were stored in a cooler until ready to send to the Vancouver Island University laboratory.

Ground truthing was performed on February 5th, 2026, and samples were taken on March 11th, 2026.

Figure 1 provides a visual example of the methods used for sampling.

Figure 1. *Sampling along Colquitz River.*

Suitability Modelling

Criteria for Modelling

To find the highest rank areas for 6PPD-Q infiltration into streams, there are four criteria that were chosen:

1. Areas around salmon bearing streams in which direct run-off can enter.
2. Areas around catch basins in which stormwater run-off enters lateral piping and gravity mains, where it is deposited into salmon bearing streams via outfalls.
3. Low permeability of surrounding land use (impervious land restricts percolation of stormwater into the ground).
4. Watersheds showing high predicted levels of water flow and accumulation into the streams.

To combine these criteria together, they will be calculated into raster layers in ArcGIS pro and fed through a raster calculator to determine areas of overlap between the criteria. The areas with the highest overlap are areas where rain gardens, or other forms of green stormwater infrastructure, are recommended to be implemented to prevent 6PPD-Q from entering salmon bearing streams. These steps will also be implemented into a model in ArcGIS pro, so it can be repeated for any stream of interest. Unless specified, each tool will be run with its default settings.

Areas Around Salmon Bearing Streams

The data needed for this section are as listed:

- A river line feature class which includes the rivers of Colquitz watershed. This data was supplied by Camosun College.
- A fish observation point feature class which includes information of where salmonoid species are found within the Colquitz watershed. This data was supplied by iMaps.

Before the fish observation data could be used, it was cleaned to determine recent fish sightings were used. This was done by "selecting by attribute" the salmonoid specie sightings from the last ten years. The attribute selected was "OBS_DT" and the value range was ">20160101". A new layer was created with this selection called "Fish Sightings".

To select the salmonoid bearing streams in the Colquitz watershed, a "select by location" was used with the river feature class as the input layer. This was specified to select rivers "within a distance" with a chosen value of 5 meters of the "Fish Sightings" feature class. This was done to take into consideration the GPS error of the salmonoid point data along with the river being a line feature layer with no overlap of points. The tool "make feature layer" was then applied to this selection to create the "River of Interest" feature class. With the "River of Interest" feature class, a buffer of 5 metres using the buffer tool. The parameter of 5 metres in distance was used alongside a flat end type with every buffer being dissolved into one feature. This buffer was then run through the "Polygon to Raster" tool to create the raster layer of value "1" for the future raster calculation.

Areas Around Catch Basins

The stormwater catch basin data was a point feature layer taken from the interactive SaanichMap database. Using the buffer tool, a 10-meter buffer was created surrounding the stormwater catch basins with the buffer being dissolved into one feature. This buffer was then put into the "Polygon to Raster" tool with the value field being equal to the "FID" attribute field. This made the buffer have a value of "1" for the raster calculation.

Permeability of Landcover

To incorporate the permeability of surrounding landcover in our calculations, we created a raster dataset using satellite imagery. The imagery was collected from Copernicus Sentinel-2 which resulted in an 8-4-3 spectral band in a false composite. From there, we ran the imagery classification wizard with the following parameters:

- Classification method: Supervised
- Classification type: Object based
- Classification schema: Default
- Spectral detail: 15
- Spatial detail: 15
- Minimum segment size: 20
- Show segment boundaries only: unchecked

All default classes were removed and replaced with two classes: Impervious and Pervious. Each had a value of 20. Using the polygon tool, we trained the wizard to detect between classes by selecting 10-15 samples of imagery that fell within each respective class. With the classifier set to "Support Vector Machine" and the maximum number of samples per class set to "0," we created the preview classification, then ran the final classification.

Watershed of Area

The data needed for this section are as listed:

- A watershed boundary polygon feature class of the area of interest. The Colquitz watershed boundary layer was supplied by iMaps.
- The stormwater outlets point feature class, which was supplied by the Department of Engineering for the District of Saanich.
- A Digital Elevation Model (DEM) of the area of interest. This was supplied by GeoBC.

To make sure the outlets were contained within the Colquitz watershed, the clip tool was used to clip the stormwater outlets point layer by the Colquitz watershed boundary polygon layer. This created a new layer called "Watershed Outlets".

With the DEM, it first was put into the "Fill" which outputted the "DEM Fill" layer. This "DEM Fill" was then run through the "Flow Direction" tool which outputted the "DEM flowdir" layer. The "Flow Accumulation" tool was used with the "DEM flowdir" layer to then make the "DEM Acc" layer.

Using the "Watershed Outlets" as a pour point and "DEM Acc" as the flow accumulation raster layer, these two layers were inputted into the "Snap Pour Point" tool to create a "DEM spp" layer. The watershed could finally then be mapped with the "Watershed" tool using the "DEM flowdir" and "DEM spp" layers.

The "Watershed" raster layer then needed to be reclassified with the "Reclassify" tool to map out the criteria of watershed connectivity. In the "Reclassify" tool, the "Value" field was used from the "Watershed" raster. Then, clicking on the classify button, manual breaks were chosen to separate the values by priority as seen in Table 1.

Table 1. *The reclassification of the "Value" field from the "Watershed" raster.*

Start	End	New
2	143	0
143	324	1
324	434	2
NODATA	NODATA	NODATA

Raster Calculations

With the criteria implemented into the designated raster layers, raster calculations were performed to identify overlapping areas and assign their priority.

The first raster calculation, with the addition of the "Watershed", "Permeability", and "River of Interest Buffer" layers, found impermeable areas of high accumulation directly around the salmonoid bearing river.

The second raster calculation, with the addition of the "Watershed", "Permeability", and "Catch Basins Buffer" layers, found impermeable areas of high accumulation in which stormwater would enter the lateral lines and gravity main systems.

Once these calculations were complete, raster layers were outputted with values of "1", "2", "3", and "4". Values of "4" represent the highest priority areas, while "1" values indicate the lowest priority areas for GSI.

Results

Sampling

Upon identifying stormwater outlets of concern along Colquitz Creek, the areas were "ground-truthed" to assess what type of outlets were present, salmonoid habitat suitability, and the density of impervious surfaces/vegetation surrounding the area. Seven outlet sites were visited along Colquitz, however, only five were chosen for sampling:

I) Under the highway 1 bridge, along Interurban Rd. and Burnside Rd. W (48° 45' 88" N, 123° 39' 52" W)
II) Along the Colquitz Creek walking trail, near the intersection of Interurban Rd and Dumeresq St (48° 46' 10", 123° 39' 48" W)
III) Beside the bridge on Marigold Rd, 50m NE of Interurban Rd (48° 46' 73", 123° 40' 08" W)
IV) At the culvert running under Mann Av along the Colquitz River Trail (48° 48' 86", 123° 39' 62" W)
V) Under the Wilkinson Rd bridge, at Wilkinson Rd and Lindsay St. (48° 49' 20", 123° 40' 02" W)

Two of the seven sites were not selected for sampling because the areas surrounding the outfalls were mostly pervious surfaces, and sample collection bottles were limited to what was available (n=10).

After visiting the sites, we waited for an appropriate (>10mm) amount of rain to fall before going out to sample. The results of the sampling are presented in Table 2.

Table 2. *Results of 6PPD-Q sampling were taken on March 11th, 2026. Sampling analysis provided by VIU AERL. Highlighted rows contain lethal concentrations for coho salmon.*

Sample ID	Sample Location	Quantity of 6PPD-Q (ng/L)	Sample Type	Time
BCCF_AERL_07594	Culvert under Mann Av.	0	Stream	14:17
BCCF_AERL_06815	Beneath bridge at Wilkinson and Lindsay	0	Stream	14:54
BCCF_AERL_03701	Beneath bridge at Wilkinson and Lindsay where rain drops fall directly into stream	0	Stream	14:56
BCCF_AERL_06814	Beneath bridge along Marigold	0	Stream	15:28

	Av., near Interurban Rd.			
BCCF_AERL_05955	Along Colquitz riverside trail near Interurban and Dumeresq	0	Stream	15:43
BCCF_AERL_07942	Under Highway 1 bridge along Colquitz walking trail and Burnside Rd.	9.4	Stream	15:56
BCCF_AERL_06811	Pipe beside the culvert under Mann Av.	68.9	Point Source	14:26
BCCF_AERL_08035	Pipe beside the bridge along Marigold Av., near Interurban Rd.	9.6	Point Source	15:21
BCCF_AERL_07943	Along Colquitz riverside trail near Interurban and Dumeresq	9.7	Point Source	15:41
BCCF_AERL_05945	Pipe connected to Highway 1 bridge along Colquitz walking trail and Burnside Rd.	301	Point Source	15:53

Storm water outlets (point source) locations contain varying levels of 6PPD-Q, with highlighted rows indicating lethal amounts for adult coho salmon and cutthroat trout.

The highest concentration observed, sampled from a pipe leading from the Highway 1 bridge, was 301ng/L. This is 3x the lethal concentration for juvenile coho salmon. Juvenile coho may have been present in the stream at the time of sampling as they spend up to 18 months in freshwater streams before migrating out to the ocean (Hua at al., 2023; U.S. Fish & Wildlife Service, n.d.). The point source collection under Mann Ave., while not acutely lethal, also contained high enough concentrations of 6PPD-Q to cause damage to coho salmon from long-term exposure (Hua et al., 2023). Notably, the Mann outfall pours into the stream which is in a protected salmon habitat area (Figure 2).

Figure 2. *Salmon habitat sign on Mann Ave above the point source pipe BCCF_AERL_06811.*

Besides the stream sample from beneath the Highway 1 bridge, other stream samples did contain any 6PPD-Q. This could be for a few reasons (see discussion).

Model

The ArcGIS Pro Rain Garden Suitability model is functional when the following feature layers are present:

1. Digital Elevation Model (raster)
2. Watershed boundary (polygon)
3. Storm outlets (point)
4. Storm catch basins (point)
5. Fish sightings (point)
6. Rivers (line)
7. Permeable surfaces (raster)

Raw data may require altering prior to being inputted into the model. For example, removing all fish observation sightings older than ten years or fixing river line layers to connect where they may be disjointed is necessary to ensure proper functionality of ArcGIS tools.

Figure 2 shows the model as it is displayed in ArcGIS Pro. Grey outputs are not functional and involuntarily assigned by the software. Blue ovals represent inputs, while yellow ovals represent tools, and green ovals represent functional outputs.

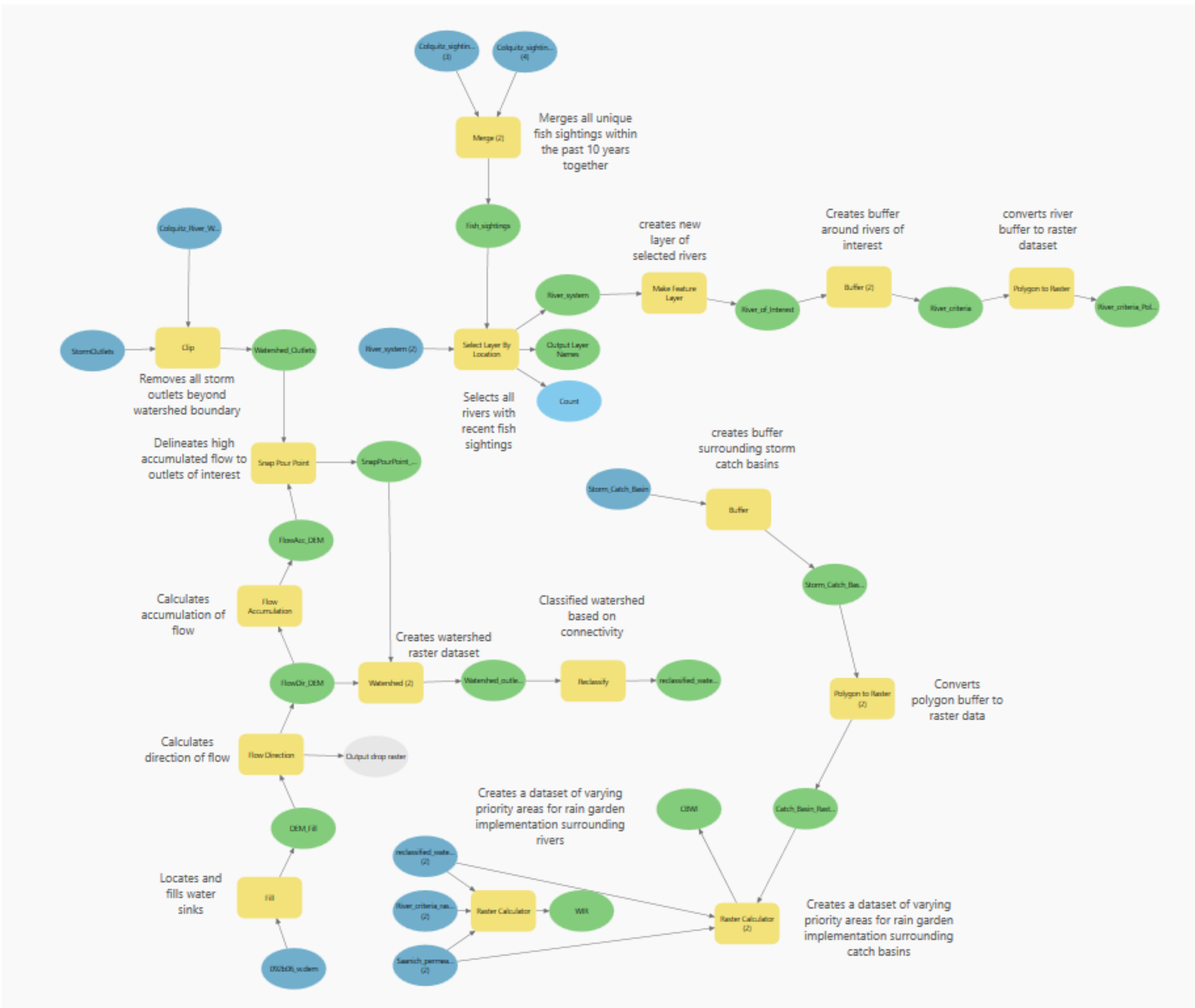


Figure 2. *Rain Garden Suitability Model.*

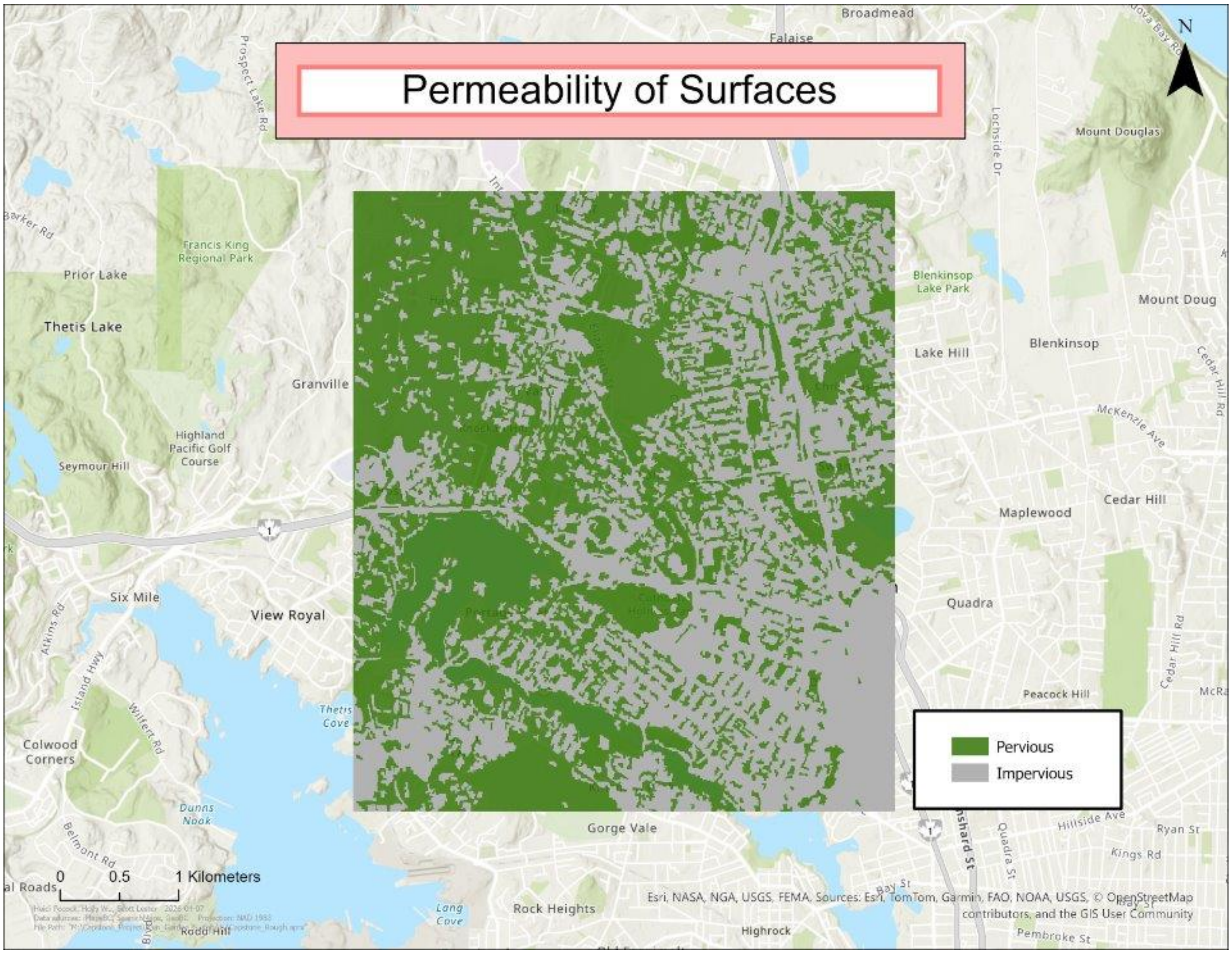


__Figure 3.__ Permeable surfaces in the Colquitz watershed.

Figure 3 shows the resulting output of training ArcGIS Pro to recognize impermeable surfaces from Sentinel-2 satellite imagery. Because this output has two classes, it is not considered a detailed representation of accurate land-use cover, but rather a simplification of green vs. grey city space.

Figure 4 shows the resulting output of running the Digital Elevation Model through watershed mapping tools, using catch basins as the pour point.

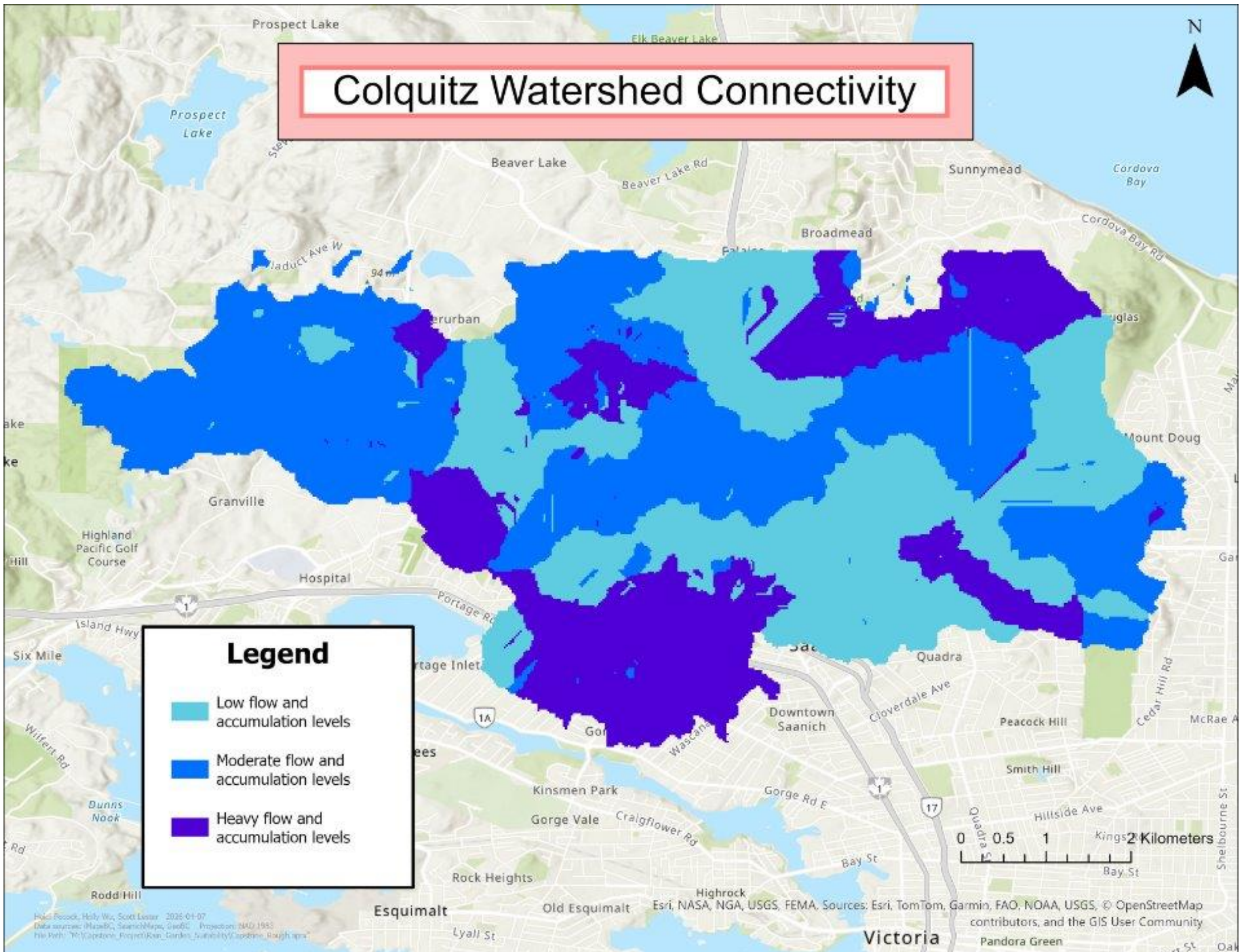


Figure 4. *Colquitz watershed connectivity.*

The final result of running these layers through the raster calculator, in combination with the river and catch basin buffers, is shown below in Figure 5. Low priority areas are assigned less pigment, while high priority areas are richer and darker in colour.

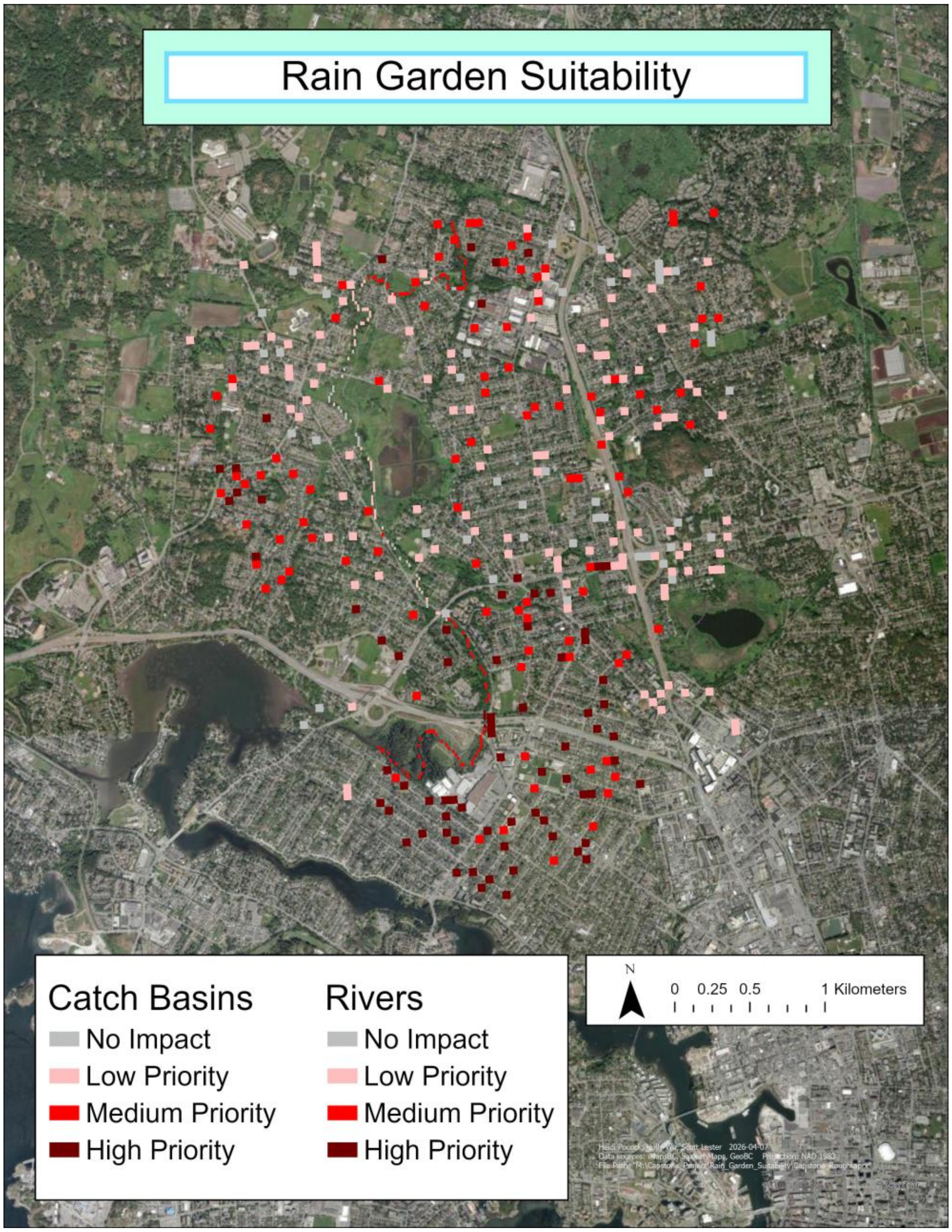
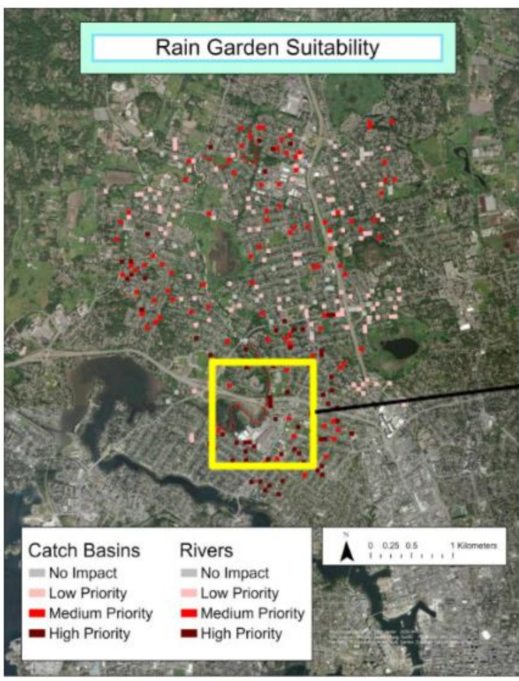


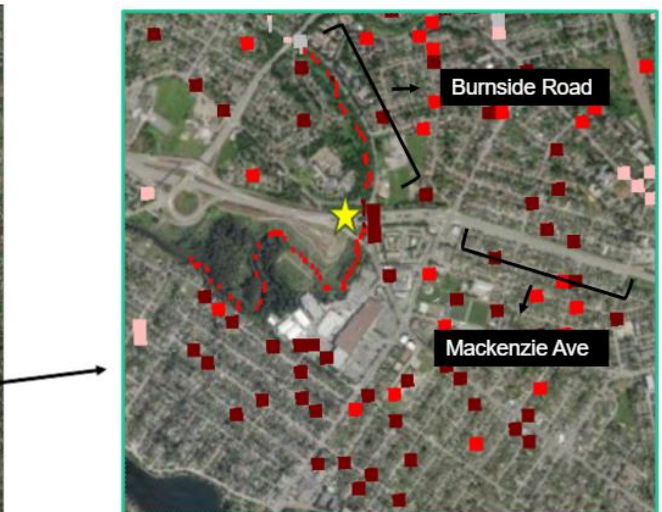
Figure 5. *Suitability of rain gardens in the Colquitz watershed.*

Discussion

Samples with the highest concentrations of 6PPD-Q were obtained from heavy vehicle traffic areas dense with impervious surfaces. However, sampling results did not reach as high as they have previously been recorded. This is most likely due to the preceding minor rain events observed for two days prior to sampling. Although small, these rain events may have flushed 6PPD-Q off the roads and into the river, diluting results. It is also possible that concentrations fluctuated due to the timing of sampling throughout the rain event. For example, the highest observed contamination of 6PPD-Q may have been even higher earlier in the day, while our team was still sampling the northern stretch of Colquitz River.

Our sampling results indicated the successful functioning of the ArcGIS model, as shown in Figure 6. The area marked in yellow indicates sample BCCF_AERL_05945 which corresponds with the most heavily concentrated contamination in this report. This sample was taken near the busiest highway in the region, next to a construction zone.





Sample ID	Sample Location	Quantity of 6PPD-Q (ng/L)	Sample Type
BCCF_AERL_05945	Pipe connected to Highway 1 bridge along Colquitzwalking trail and Burnside Rd.	301	Point Source

Figure 6. *Sample site BCCF_AERL_05945.*

Sample site *BCCF_AERL_06811,* which had the second highest point source concentration, is also confirmed to be a medium-high priority area by the model (not pictured). Worth noting is that this sample site, though not as busy as Highway 1, has a bridge for vehicle traffic that crosses over the river and is a source for direct contamination of 6PPD-Q.

Data cleanup took the most time out of developing the model. Some layers were lacking accurate data, which required careful correction before the tools could be run. It should be acknowledged that locating high-quality, accurate data is one of the main limiting factors in the utilization of this model, especially for non-governmental organizations.

In some cases, the implementation of alternate forms of bioretention cells may be better suited to a given location than a rain garden. This is given by limiting factors such as surrounding stormwater infrastructure, available space, water flow rates, budgetary constraints, and plant availability. Because each site is unique, these factors will be responsible for dictating the size and shape of each bioretention cell.

Conclusion

Using ArcGIS pro software, a model was made to map for high-risk areas of 6PPD-Q entering salmonoid bearing streams. These high-risk areas include indirect entry via stormwater catch basins and direct stormwater run-off into the river. This model can be run for any stormwater system if all the required data is present. Our model outputs a visual representation of possible locations where rain gardens can be built to reduce the mortality rates of salmonoid species of interest.

Recommendations

After conducting this project, our group gathered a few notable recommendations for those wanting to use this model to map 6PPD-Q risk in river systems.

Since the classification wizard is not in the model, this is a manual tool that users will have to use for identification of permeability. Using Victoria as an example, this city is very green, which makes it hard for the model to fully distinguish between trees and impervious surfaces. It would be wise to train the classification wizard with more classes instead of just “Impervious” and “Pervious” to get a more accurate result. Creating more specific classes within the tool can make training the classification wizard smoother, with less variety of colours being represented by one class.

Note that this model works best in the hands of people working at a governmental level. This is because government databases house all the data necessary for this model to run. Having accurate data is important for this model to give an output as accurately as possible when deciding where to place rain gardens or other bioretention cells with budgetary restrictions.

Additionally, to further reduce the risk of inaccurate results, it is important to ground truth the location for suitability of rain gardens. It is possible that a high-risk area has no room for a rain garden, and a different green stormwater infrastructure will have to be considered in its place. Another layer that could be added to future runs of this model is a layer on preexisting rain gardens. This could be used to remove redundant information, as an area that is high-risk that already has a rain garden would not be useful in being portrayed by a model looking into future rain garden implementations.

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Appendix

Sampling Results from VIU AERL

	SampleID	SampleKit	Sampler	SampleType	DateTime	Quant 6-PPDQ ng/L	Comments
2	Sample_BCCF_AERL_07594	Location_PSS-generic	Holly,Hieidi a	During	2026-03-11 14:17	0	Culvert under Mann Ave. For Camosun rain garden quantification (capstone)
3	Sample_BCCF_AERL_06815	Location_PSS-generic	Heidi, Allison	During	2026-03-11 14:54	0	Beneath bridge at Wilkinson and Lindsay
4	Sample_BCCF_AERL_03701	Location_PSS-generic	Heidi, Allison	During	2026-03-11 14:56	0	Beneath bridge at Wilkinson and Lindsay, sampled where rain drops fall directly from road
5	Sample_BCCF_AERL_06814	Location_PSS-generic	Heidi, Allison	During	2026-03-11 15:28	0	Beneath bridge at marigold and violet
6	Sample_BCCF_AERL_05955	Location_PSS-generic	Scott. Hieidi,	During	2026-03-11 15:43	0	Along colquitz walking trail near interurban and dumeresqCamosun College Point source sample for same spot was 9.2°c
7	Sample_BCCF_AERL_07942	Location_PSS-generic	Holly, Heidi, .	During	2026-03-11 15:56	9.4	Under hwy 1 bridge along colquitz walking trail and Burnside rd. Camosun capstone
8	Sample_BCCF_AERL_06811	Location_PSS-generic-PS	Holly, Hieidi,	Point Source	2026-03-11 14:26	68.9	Culvert beneath Wilson and Mann Ave for Camosun Capstone quantificationTemp: 6.9C
9	Sample_BCCF_AERL_08035	Location_PSS-generic-PS	Heidi, Allison	Point Source	2026-03-11 15:21	9.6	Beneath bridge at marigold and violetTemp: 8C
10	Sample_BCCF_AERL_07943	Location_PSS-generic-PS	Holly, hieidi,	Point Source	2026-03-11 15:41	9.7	Along colquitz walking trail near interurban and dumeresqCamosun capstone,
11	Sample_BCCF_AERL_05945	Location_PSS-generic-PS	Holly, Heidi, .	Point Source	2026-03-11 15:53	301	Under highway 1 bridge along colColquitz trail/Burnside roadTemp: 7.2C
12							
13	Lethal concentration for juvenile coho is 41 - 95 ng/L						
14							