

# North Shore Rain Garden Project - Overview

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## ENGAGING THE COMMUNITY TO BUILD FLOOD-RESISTANT RAIN GARDENS



IN COOPERATION WITH:



ADVISORS:



### WHAT IS A RAIN GARDEN AND HOW DOES IT PROVIDE "GREEN INFRASTRUCTURE"?

A rain garden provides natural filtration for urban run off. It adds: aesthetic value; environmental value (improves water quality, reduces flow, and protects biodiversity); lowers costs (by replacing aging 'grey' infrastructure); and provides opportunities for community building and engagement.

## STRATEGIES

COLLABORATIVE RESEARCH

COMMUNITY PARTICIPATION

DESIGN & CONSTRUCTION OF RAIN GARDEN

LEARNING & COMMUNITY BUILDING

## VOLUNTEER OPPORTUNITIES

Interested in media productions, event planning, research, and community engagement?

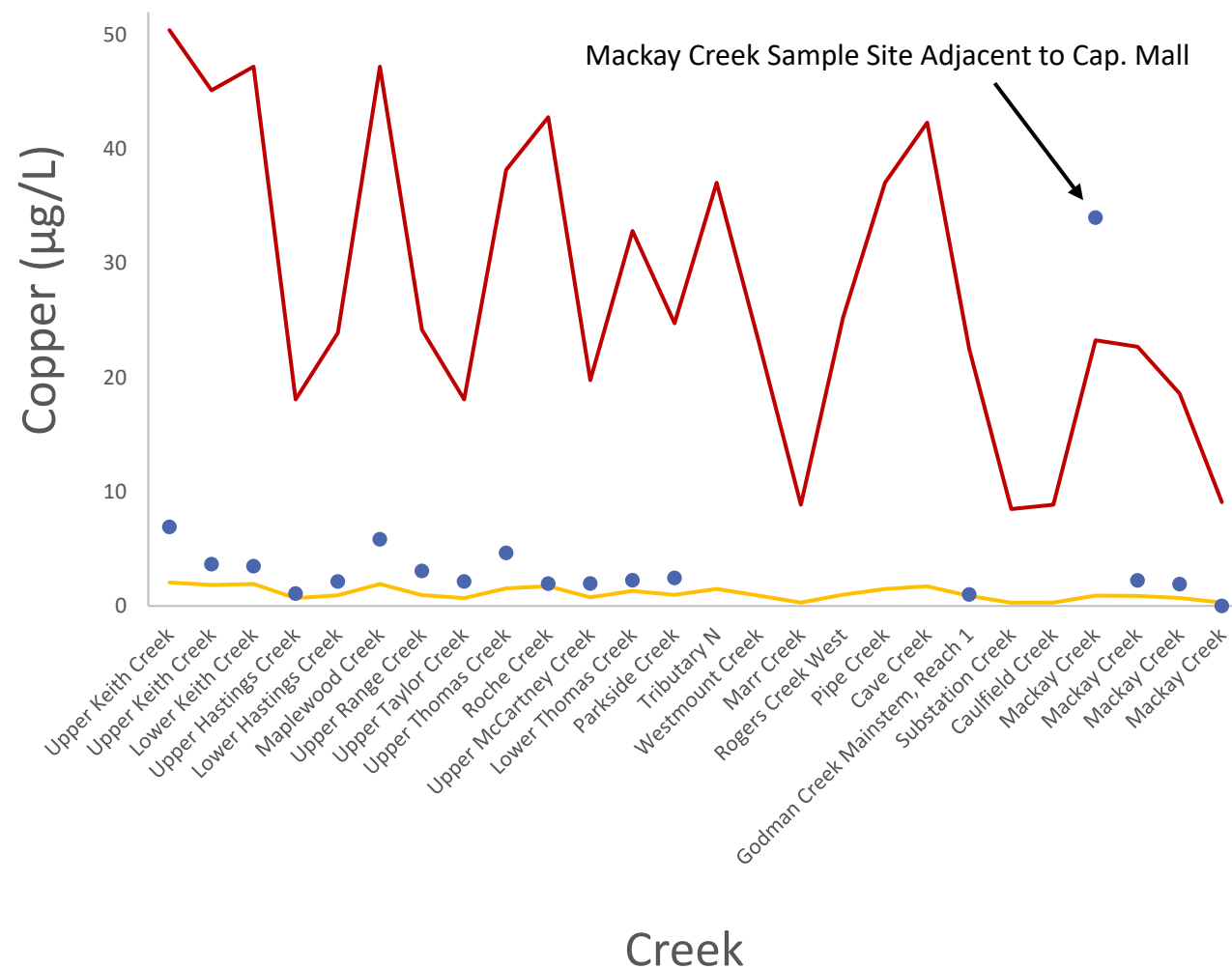
Volunteer with us!

[www.sfu.ca/fenv/rain-garden](http://www.sfu.ca/fenv/rain-garden)

# Heavy Metal Toxicity

- Cu toxicity found in 17 sites  
Zn toxicity found in 8 creeks
- Cd and Pb toxicity only occurred in outfall samples

**Red line:** Acute toxicity guideline  
**Orange line:** Chronic toxicity guideline  
**Blue dots:** Copper concentrations for each site



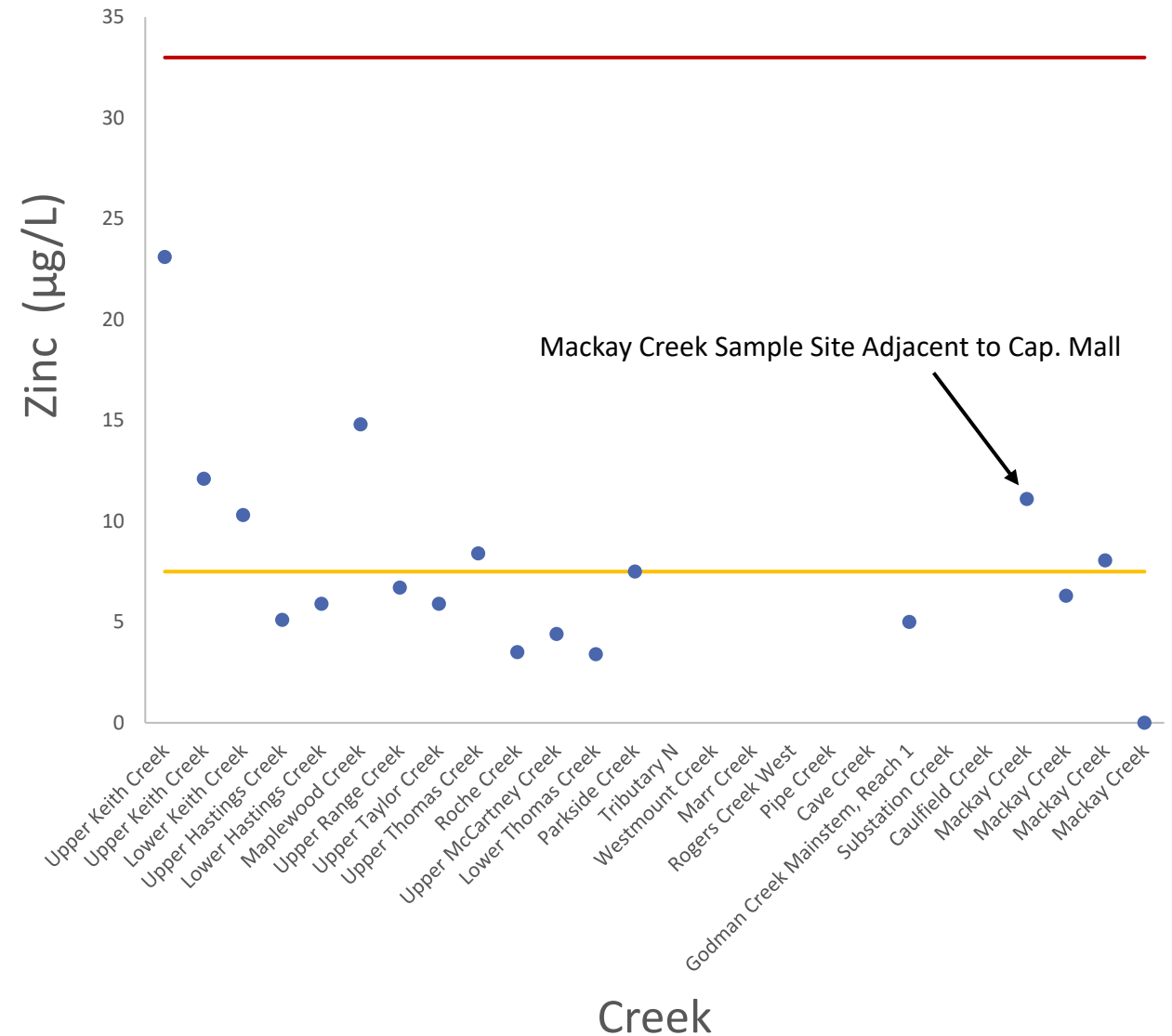
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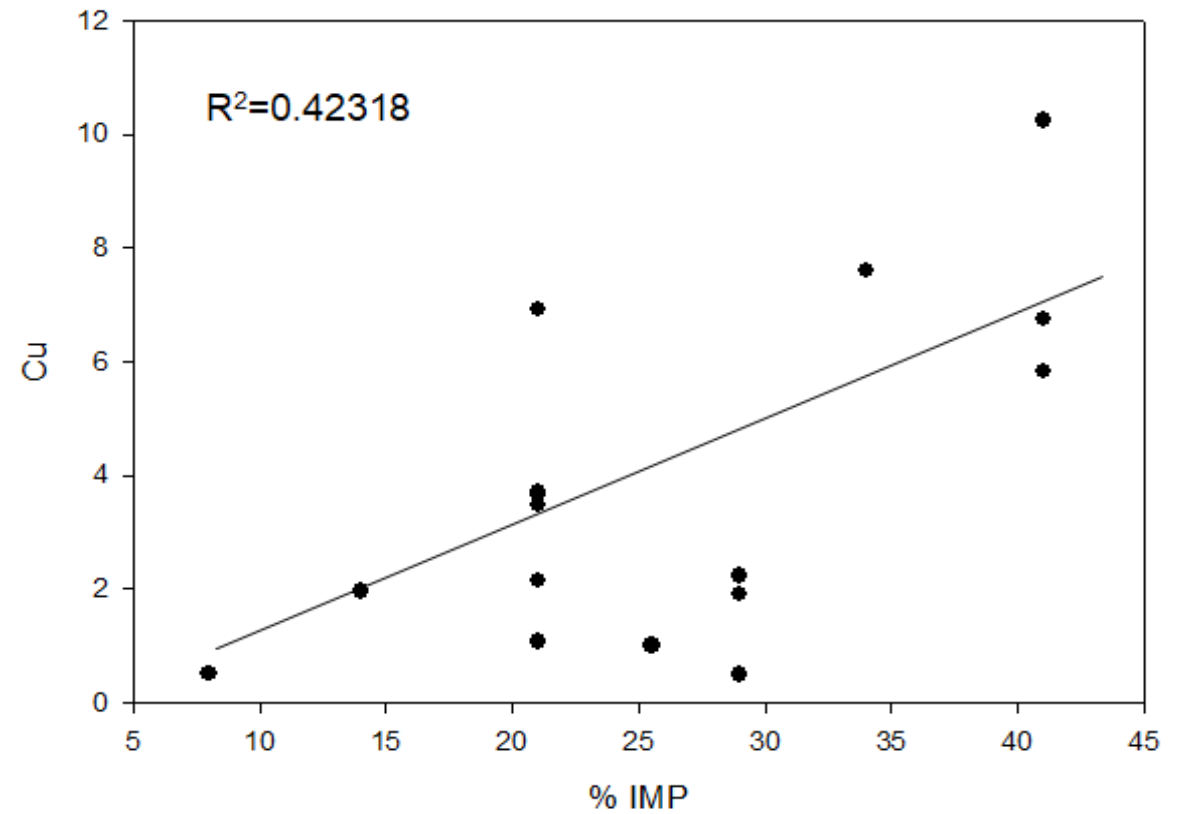
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## Heavy metals vs. impervious surface cover



	R <sup>2</sup> Value	P-Value
Copper (Cu)	0.42	0.024
Cadmium (Cd)	0.32	0.014
Lead (Pb)	0.59	0.038
Zinc (Zn)	0.39	0.023

# Rain Garden Demonstration Project

- City of North Vancouver
  - Sam Walker Rain Garden Remediation Project
    - Angela Negenman & Dave Matsubara
- District of North Vancouver
  - Mt. Seymour Culvert Replacement Project
    - Angela Mawdsley





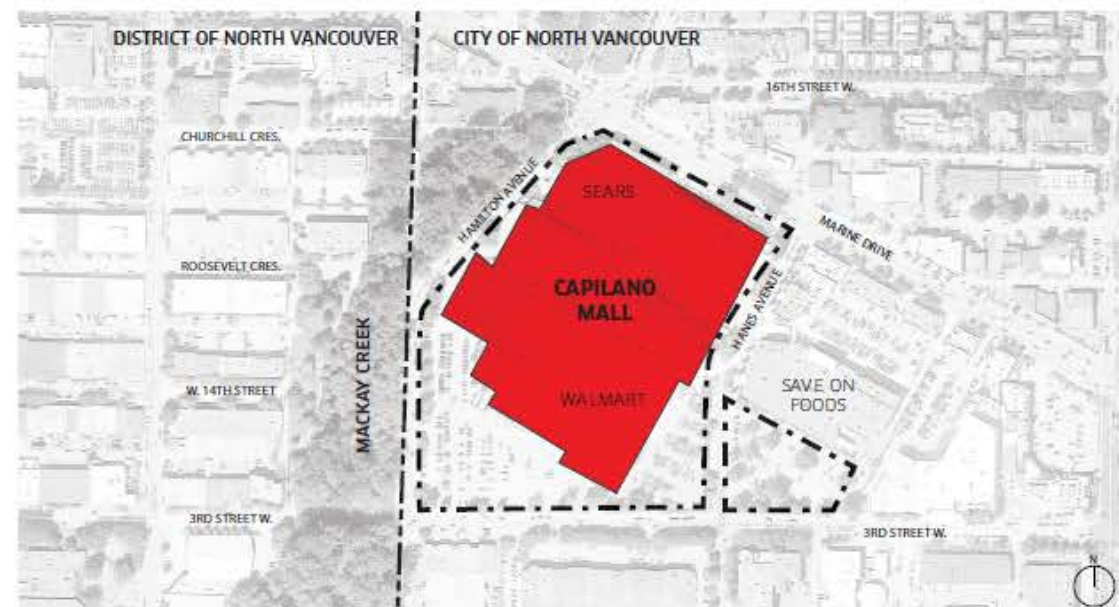


# Salmon-Safe Design Competition

- Salmon-safe urban standards:
  - **Stormwater management, water use management, erosion prevention and sediment control**, chemical and pesticide reduction and **water quality protection, enhancement of urban ecological function, instream habitat protection** and restoration, and riparian wetland and **locally significant vegetation protection and restoration**



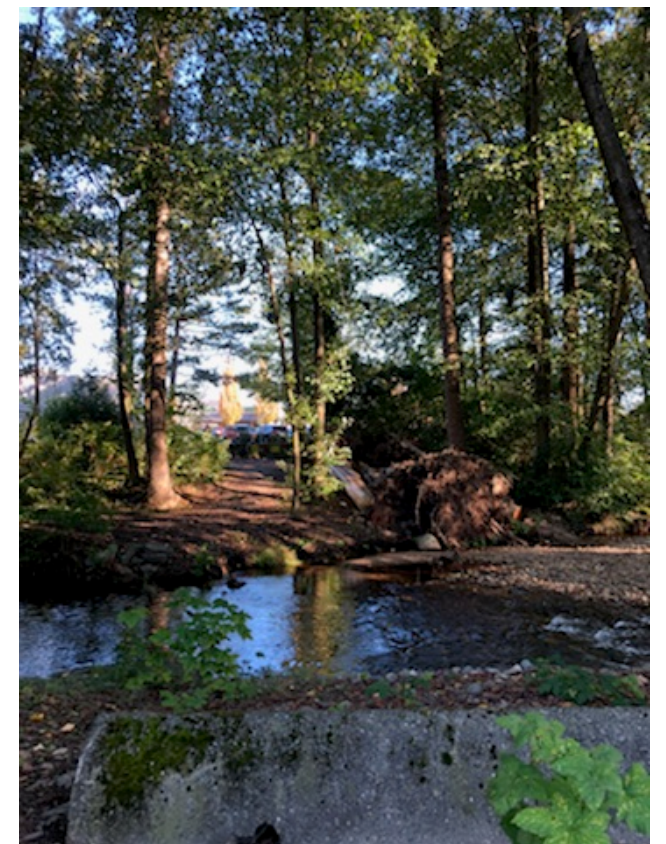
LOCATION



CONTEXT PLAN







# Possible Project Opportunities – Option 1

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Possible  
Project  
Opportunities  
– Option 2

# Research Opportunity

- Rain garden development at this particular site has stand-alone research capacity to assess several different parameters:
  - Treatment capacity i.e. volume treated/infiltrated over time
  - Treatment efficacy
    - Assessment of water quality before and after rain garden treatment
  - Soil contaminant burden
    - Assessment of contaminant-loading in soil over time



Montgomery County 2017



Minnesota Pollution Control Agency 2018



Alternative Parking Design 2018



Montgomery County 2017

# Example Projects

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