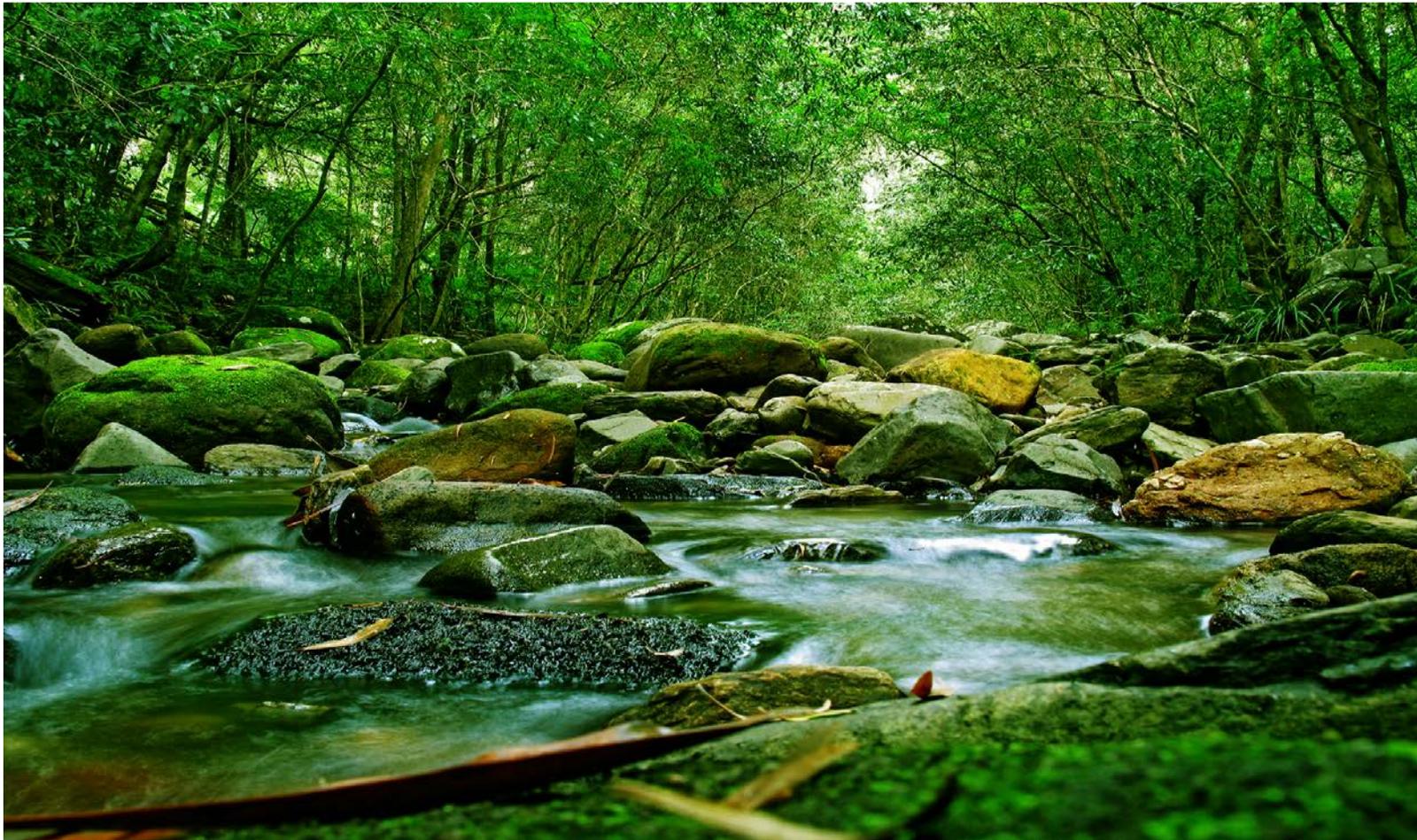


# Storm and Surface Water Monitoring

City Council Briefing

October 16, 2016





# Topics

- 2015 City Comprehensive Plan Monitoring Policies
- 2016 Storm and Surface Water Management Comprehensive Plan - Proposed Monitoring Programs
- Additional Monitoring Program Options
- Recommendations



# City Comprehensive Plan Monitoring Policies

- Policy EC.5.32  
Support partnerships to obtain funding for water quality monitoring
- Policy EC.5.50  
Monitor State listed 303d impaired water bodies
- Policy EC.5.21  
Watershed monitoring program (streams and groundwater)
- Policy EC.3.13, EC.3.14, EC.3.16  
Wetland Monitoring

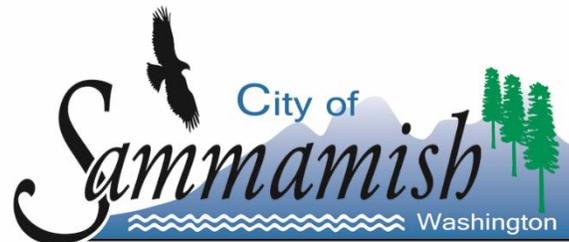


# City Comprehensive Plan Monitoring Policies

- Policy EC.5.39  
Monitor Pine and Beaver Lakes
- Policy EC.5.20, EC.5.24  
Support expanded citizen lake monitoring
- Policy EC.5.36  
Monitor pollution from site development construction
- Policy EC.5.53  
Require development to monitor treatment features for minimum 2 years

# 2016 Storm and Surface Water Management Comprehensive Plan – Proposed Monitoring Programs

- Washington State Department of Ecology Regional Stormwater Monitoring Program (RSMP)
- King County Lake Stewardship Program
- Swimming Beach Environmental Monitoring
- Ebright Creek and Wetland Headwater Monitoring





# Washington State Department of Ecology Regional Stormwater Monitoring Program

- Compliance with Phase II NPDES Permit
- Contributions from 80+ local jurisdictions
- Sammamish Annual Contributions (by pop.)
  - 2016 - \$28,287
  - 2017 - \$35,000 (Estimated)



# Washington State Department of Ecology Regional Stormwater Monitoring Program

- Status and Trends Monitoring Program  
\$3,592,000
- Effectiveness Monitoring Program  
\$7,350,000
- Source Inventory Information Repository Program  
\$677,250

# Washington State Department of Ecology Regional Stormwater Monitoring Program

## Status and Trends Monitoring

- Small streams water quality and watershed health
- Marine mussel contaminant monitoring
- Marine nearshore sediment chemistry
- Marine shoreline bacteria data analysis





# Washington State Department of Ecology Regional Stormwater Monitoring Program

## Effectiveness Monitoring Projects

- US Fish and Wildlife Bioretention Soil Mix Toxicity Reduction Study
- Federal Way Bioretention and Pond Retrofit in Hylebos Headwaters
- Bellingham LID Hydrologic Performance Study
- Lakewood Source Control Business Survey
- King County Catch Basin Cleaning Effectiveness Study
- More....

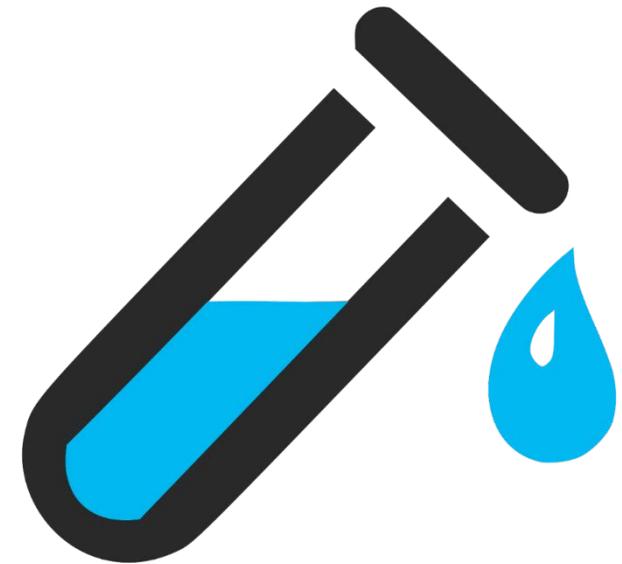
# King County Lake Stewardship Program

## Goal

Understand status and trends of water quality in Pine Lake and Beaver Lakes 1 and 2

## History of Monitoring

- Pine Lake – Since 1980s
- Beaver Lake 1 – Since 1997
- Beaver Lake 2 – Since 1971





# King County Lake Stewardship Program

## What is measured

- Total phosphorus, total nitrogen, chlorophyll-*a*

## Frequency

- Biweekly from May through October

## Annual Cost

- \$26,000

## Trends

- Pine Lake and Beaver Lakes 1 and 2 generally have good water quality



# Swimming Beaches

## Goal

Protect the public from harmful bacteria

## History of Monitoring

- Sammamish Landing – Since 2013
- Pine Lake – Since 2001
- Beaver Lake – Since 2010

# Swimming Beaches

## What is measured

- Fecal coliform and *E. coli*

## Frequency

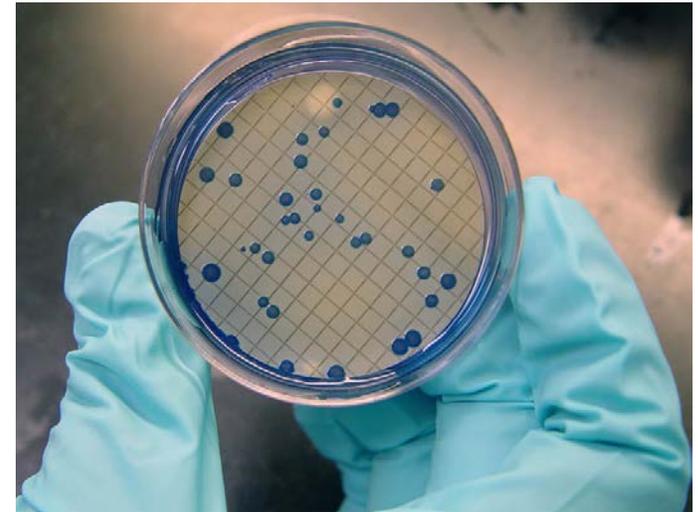
- Weekly from June to September

## Annual Cost

- \$12,000

## Trends

- Sammamish Landing and Beaver Lake remain stable, occasional elevated levels of fecal coliform in Pine Lake





# Ebright Creek and Headwater Wetlands

## Goal

Evaluate long term impacts of upstream development on wetland hydrology, stream water quality, and watershed health

## History

- Settlement Agreement with Friends of Pine Lake in 2005
- Crossings at Pine Lake and Chestnut Estates Hearing Examiner's Conditions of Approval

# Ebright Creek and Headwater Wetlands

## Site 1

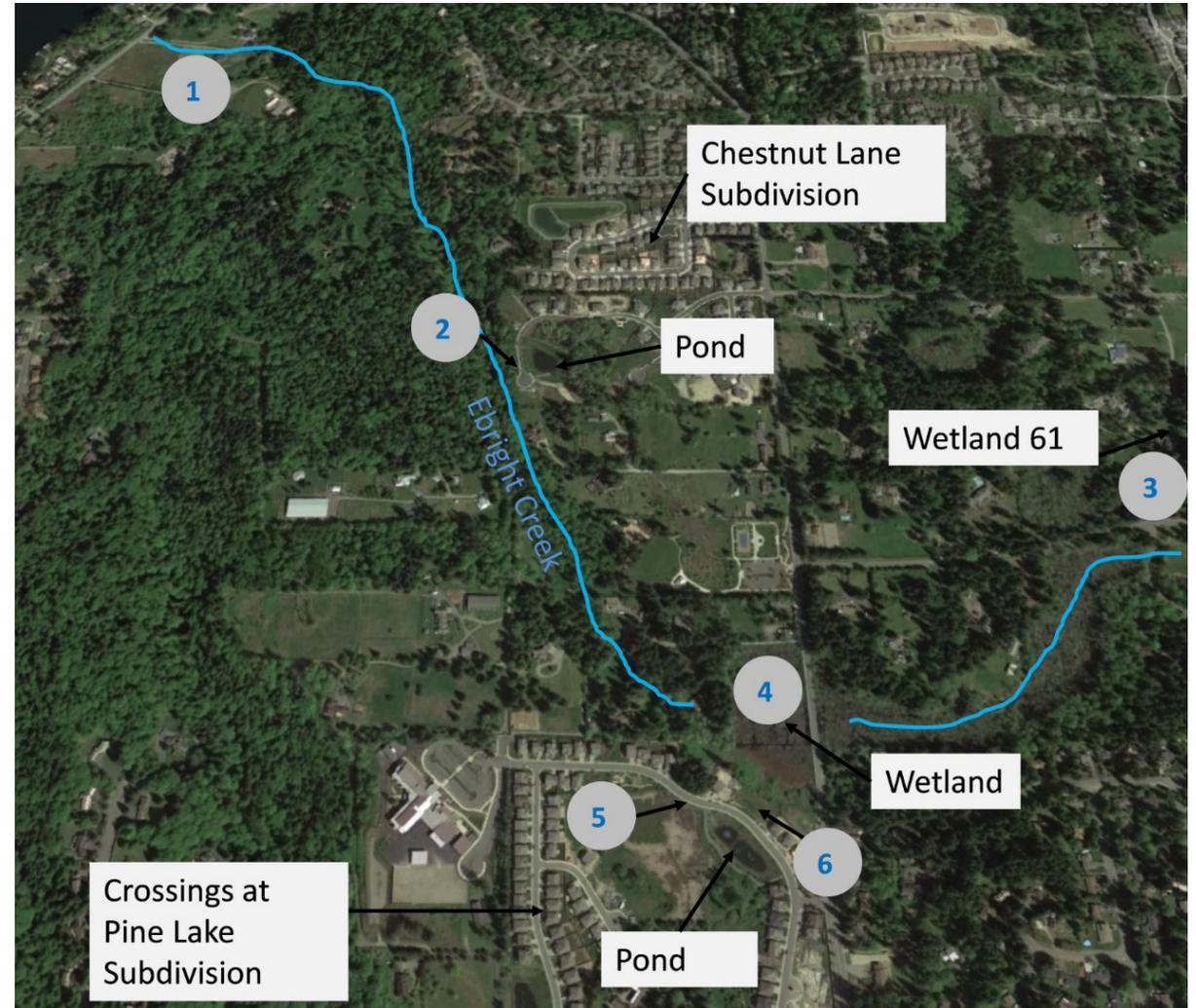
- Flow
- Temperature

## Sites 2,5,6

- Flow
- Turbidity
- Temperature

## Sites 3,4

- Water Surface Elevation



# Ebright Creek and Headwater Wetlands

## Annual Cost

- \$50,000 - \$60,000 (shared among three parties)

## Trends

- TBD - Not enough data collected yet





# Summary

## City Comprehensive Plan

## Storm Comprehensive Plan

Support partnerships for funding..... (Policy EC.5.32)	Ecology Regional Stormwater Monitoring
Monitor 303d water bodies..... (Policy EC.5.50)	Ebright Creek, Pine and Beaver Lakes
Monitor streams and groundwater..... (Policy EC.5.21)	Ebright Creek
Wetland Monitoring..... (Policy EC.3.13, EC.3.14, EC.3.16)	Wetlands 61, 17
Monitor Pine and Beaver Lakes..... (Policy EC.5.39)	Pine and Beaver Lakes
Support citizen lake monitoring..... (Policy EC.5.20, EC.5.24)	Pine and Beaver Lakes
Monitor site development construction..... (Policy EC.5.36)	Ecology Stormwater Constr. Gen. Permit
Require development O&M monitoring..... (Policy EC.5.53)	By developer M&D agreement



# Additional Monitoring Program Options

- Wetlands
- Streams
- Lakes
- Groundwater
- Construction site development discharges
- Road runoff
- Other?



# Recommendation

Add action to develop and implement comprehensive storm and surface water monitoring program strategy

- Develop list and cost estimates for additional monitoring projects
- Brief City Council for funding approval
- Implement monitoring program

QUESTIONS?