Sammamish River Valley Groundwater Study

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Groundwater Protection Program (GWPP)
Overview

Project funded by WTD Re-Use Program

Purpose:
- to help assess baseline conditions/parameters for future reclaimed water projects in the river corridor
- to help with recommendations for habitat improvements

Scope of Work:
- GW flow dynamics within the Sammamish River Valley (SRV).
- Assess GW water quality

Partners
- University of Washington; Seattle Area Geological Mapping Project
- HWA Geosciences Inc
- Golder Associates
- Dept of Ecology
Well Installation
Sammamish River Valley Groundwater Study Monitoring well locations.
Woodinville Cross Section B-B'

UW-SGMP

Seattle-Area Geologic Mapping Project
Draft, November 21, 2002

Horizontal scale, feet
Vert Exag = 5 X
Geophysical profiles on Sammamish River

Ground Penetrating Radar (GPR)

Acoustic Reflection Profiling (APR)

Electrical Resistivity Imaging (ERI)
Water Level data

- Depth to water measurements

- Continuous data loggers in all 21 wells
  - water level
  - water temperature
    - data collected at a 15 minute interval
      - same as stream gage data
WL elevations

Woodinville sites

Marymoor

SRV (west)

SRV (east): W8 2nd axis
Marymoor Wells
GW temp data
Water Quality

- Over 200 parameters analyzed during each sampling event...VOA, EDCs, Cl-pest, Ultra Low level Metals, Conv, Micro
- Exotic microbiology parameters
  - Heterotrophic Bacteria Counts
  - Coliphage
  - Cryptosporidium and Giardia
  - Enteric Virus
WQ...devilish details

- Low flow sampling ~1L/min
- Virus sampling requires 1500L purge
  - 1500 minutes = 25 hours
  - submersible pump (max rate 3 GPM) ~140 min
- Micro samples require autoclaved tubing
- Ultra Low Level Metals requires Teflon tubing... and no autoclaving
Results

- 1 enteric virus detection
  - W7B was re-sampled Mar 2004

- Various Organic detections…
  - TCE, Toulene,
  - a few EDCs (>RDL)

- Elevated As, Fe, Mn, Nitrate, TOC concentrations at various locations
W6 As 0.11 mg/L
Fe 9.2 mg/L
Mn 1.3 mg/L
TOC 19.5 mg/L

W5 Fe 22.6 mg/L
Mn 1.2 mg/L
TOC 10.5 mg/L

W4S/D As 0.16 mg/L
Fe 9.4 mg/L (S)
TOC 23.8 mg/L (S)

W2A/B Fe 15 to 8 mg/L
Mn 2.6 mg/L
TOC 5.1 to 4.8 mg/L

116th-124th Street Area
W1A/B
W2A/B
W4S/D
W5
W6
W8
Farm Area
W7A/B

W7A/B  Fe 2.1 mg/L
Nitrate 8.1 mg/L
TOC 6.5 mg/L
Status

- One more round of WQ sampling (fall 04)
- Annual data report (2003 data collection)
- GW Modeling

Future (2005 work):
- 2004 data report
- SRV GW Study Summary report