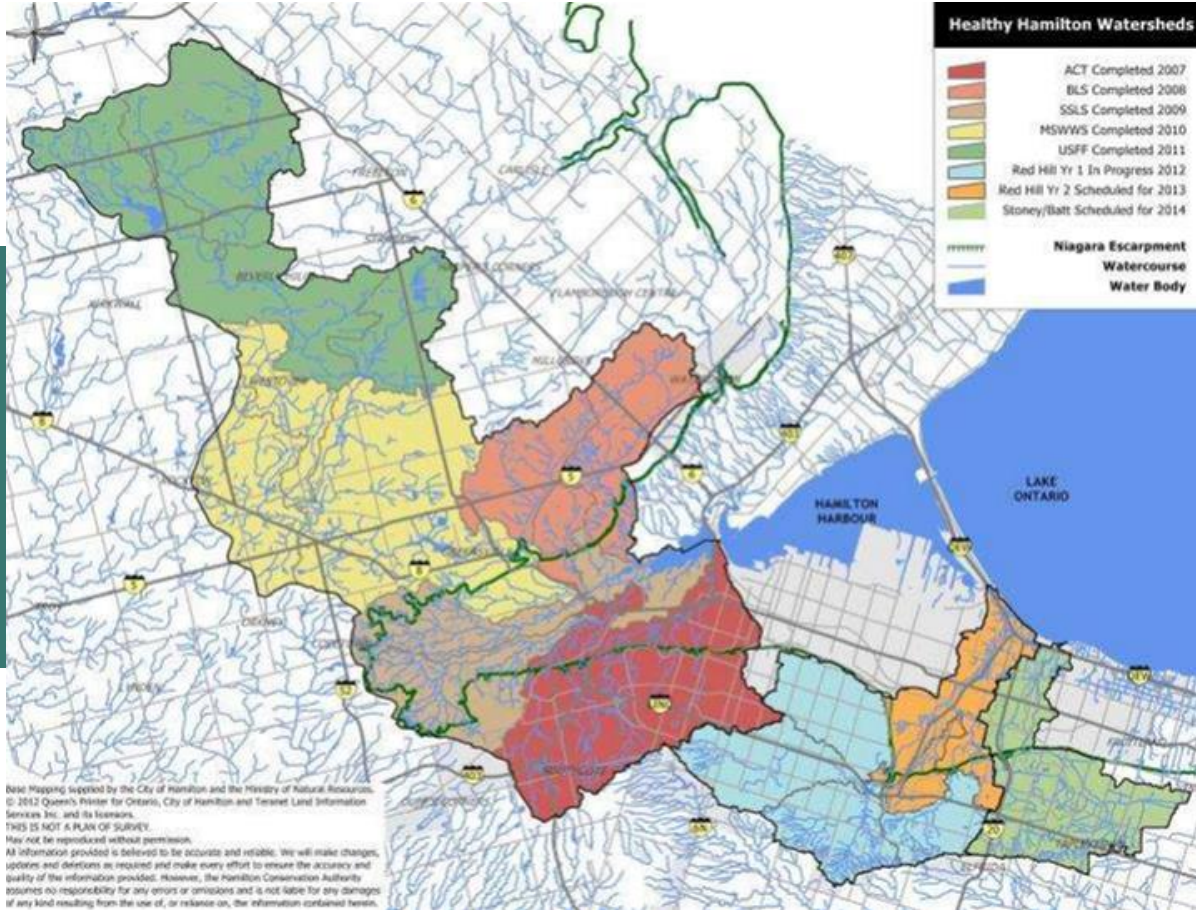


WATER QUALITY ANALYSIS OF THE CHEDOKE WATERSHED

Research completed by students of Redeemer University

HAMILTON WATERSHEDS





PROJECT INTRODUCTION

A TEAM EFFORT

2012

Water Monitoring
in Chemistry
Course

2015

Expanded
Summer
Monitoring

2018

Participated
in CityLab

2020

Water Monitoring
in Environmental
Science Course

- Combined sewage system
- Separated sewage system
- Combined sewage overflow storage
- Sampling location
- Watershed boundary
- Niagara Escarpment
- Open stream
- Buried stream

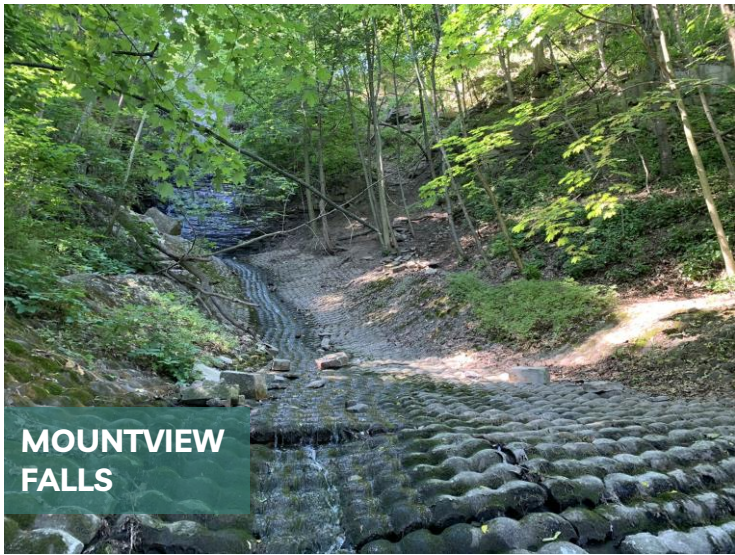


CHEDOKE WATERSHED

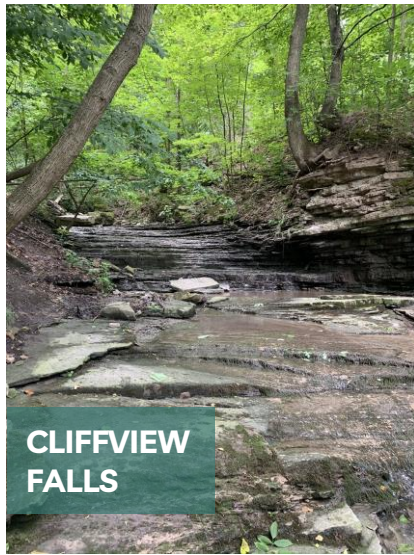
SAMPLING SITES

- Scenic Falls
- Princess Falls
- Mountview Falls
- Westcliffe Falls
- Cliffview Falls
- Chedoke Falls
- Cootes Paradise

Adapted from Stormwater Management Overview, City of Hamilton



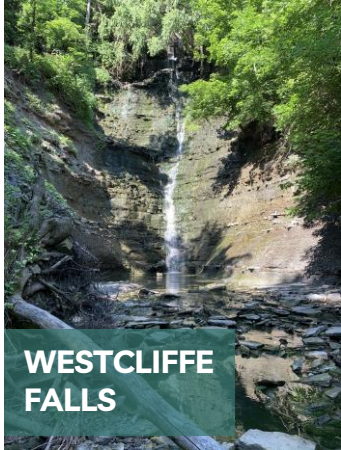
**MOUNTVIEW
FALLS**



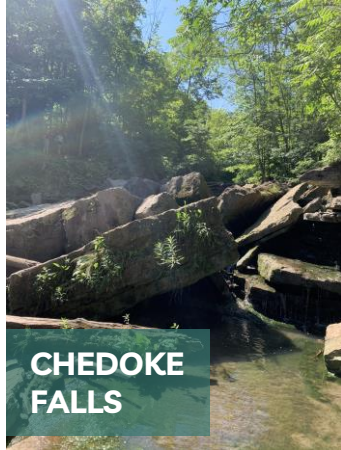
**CLIFFVIEW
FALLS**



**PRINCESS
POINT**



**WESTCLIFFE
FALLS**



**CHEDOKE
FALLS**



**PRINCESS
FALLS**



**SCENIC
FALLS**

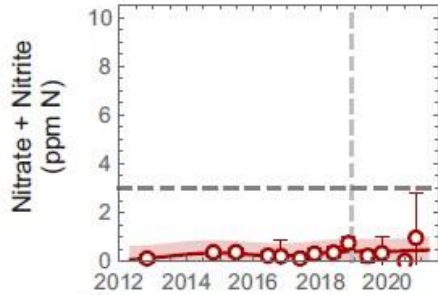
SAMPLING SITES

TRENDS

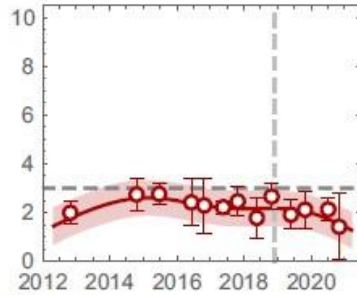
NITRATE

RESULTS

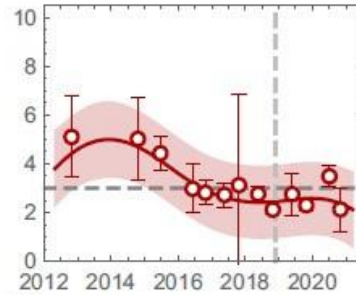
Scenic Falls



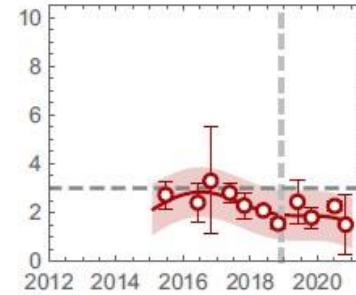
Princess Falls



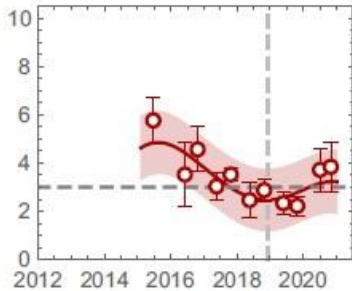
Mountview Falls



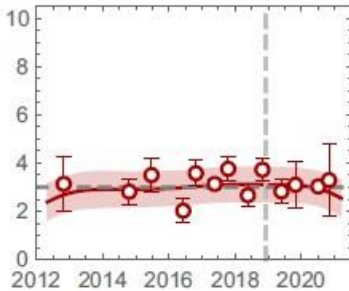
Westcliffe Falls



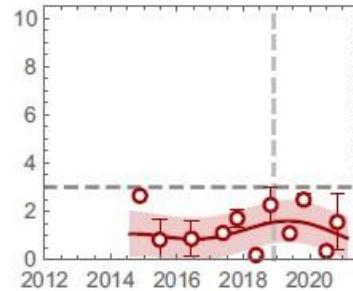
Cliffview Falls



Chedoke Creek



Princess Point

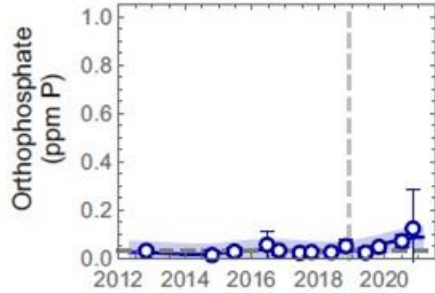


TRENDS

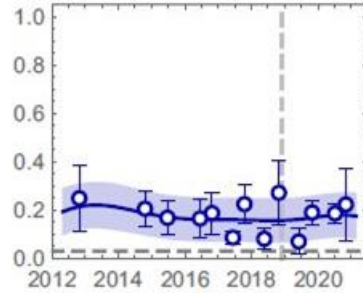
PHOSPHATE

RESULTS

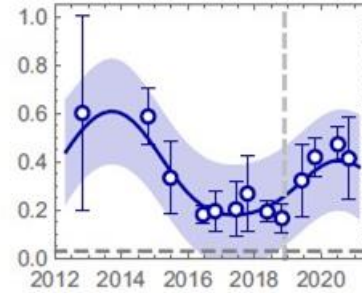
Scenic Falls



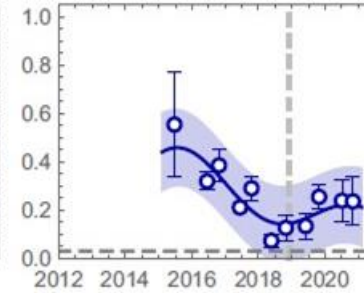
Princess Falls



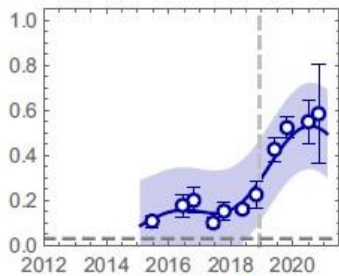
Mountview Falls



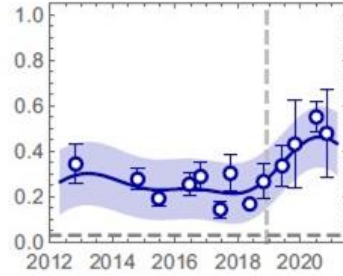
Westcliffe Falls



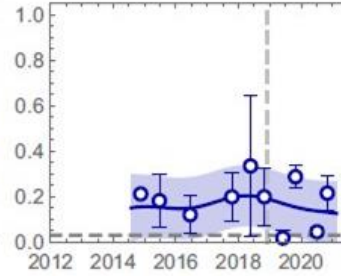
Cliffview Falls



Chedoke Creek



Princess Point

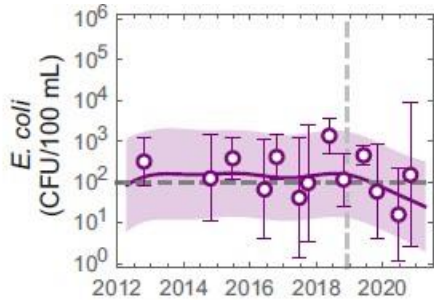


TRENDS

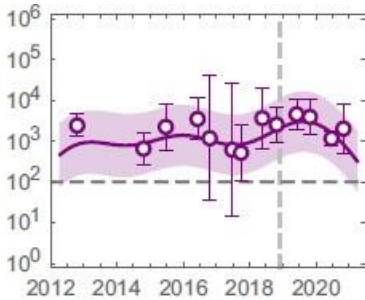
E.COLI

RESULTS

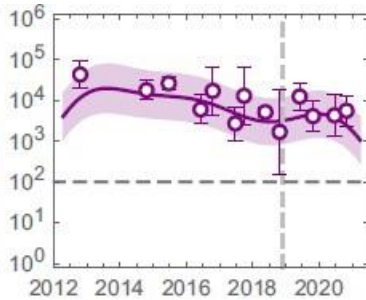
Scenic Falls



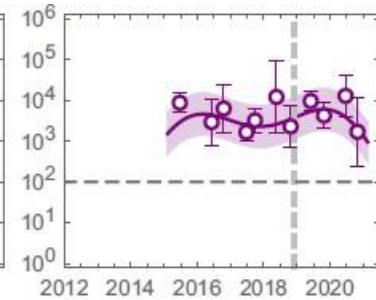
Princess Falls



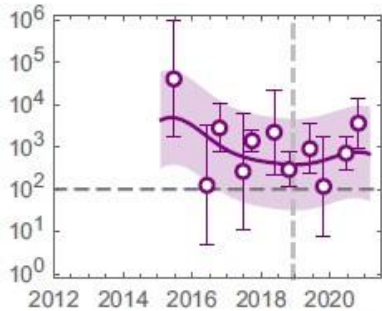
Mountview Falls



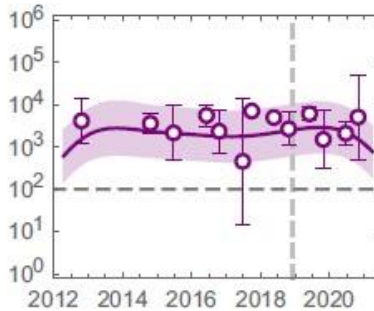
Westcliffe Falls



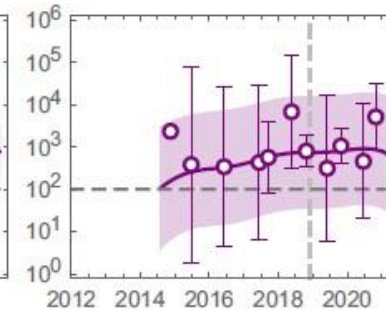
Cliffview Falls



Chedoke Creek



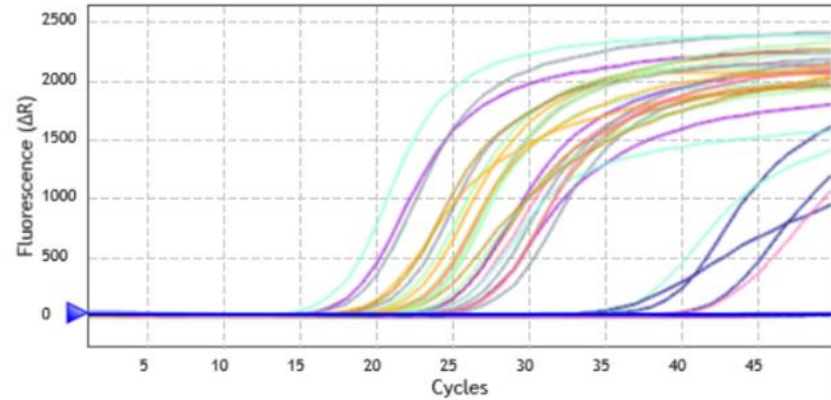
Princess Point



*recreational limit is 200 CFU/100 mL

MICROBIAL SOURCE TRACKING NOV. 3, 2020

Amplification Plots



RESULTS

Microbial Source Tracking allows us to determine the source of fecal contamination

Our data suggest that human sewage is widespread

CONCLUSIONS

- More urbanized sites are more contaminated than our site in Iroquois Heights
- Several sites improved prior to 2018 (while city was repairing cross-connections)
- Microbial Source Tracking confirms presence of human sewage
- Phosphate concentrations have increased since 2018 (when phosphate was added to address lead)



ACKNOWLEDGEMENTS



Hamilton

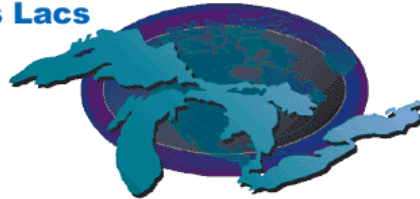


BAY AREA
RESTORATION
COUNCIL



**NSERC
CRSNG**

Great Lakes Sustainability Fund /
Le Fonds de durabilité des
Grands Lacs



CityLAB
HAMILTON



Hamilton
Conservation Authority

Healthy Streams...Healthy Communities!