



# Sandy Bay Nutrient Monitoring



December 19, 2016

Presentation to Chief and Council

# Objectives

- Complete water quality monitoring to address community concerns regarding water quality in Sandy Bay
- Funding provided by Georgian Bay Cleanup Fund (Environment and Climate Change Canada)
- Focus on phosphorus monitoring in Sandy Bay

# Study Methods

- Establish 5 monitoring stations in Sandy Bay
- Complete temperature and oxygen profiles
- Obtain and analyze water samples
- August and October sampling rounds



# Sandy Bay Watershed



# Results-Phosphorus and Microbiological

- Utilized Provincial Water Quality Objectives (PWQO) and CCME Guidelines (Canadian Council on Ministers of the Environment)
- **Phosphorus**-less than 10 µg/L represents oligotrophic conditions.
- Phosphorus results ranged from 7µg/L to 7.3 µg/L and are within the normal range for oligotrophic conditions.
- It does not appear that nutrient enrichment is an issue.
- Microbiological parameters:
  - 1) **E Coli**-First sampling round-none detectable
  - Second sampling round-very low readings (2-4 CFU/100 mL)
  - Standards are average of 5 readings in 30 days below 2000 CFU/100 mL
  - No issues with E Coli.
  - 2) **Total Coliforms**-ranged from 10 CFU/100 mL to 36 CFU/100 mL at Station 4. Drinking water guidelines are below 100 CFU/mL so there are no issues with total coliforms.

# Results-Physical Parameters

- Oxygen was plentiful at lake bottom
- During August sampling round, lake was not stratified
- **Secchi Depth** -2.4 to 3.7 demonstrating good water clarity
- Temperatures were approximately 22 C.]
- No individuals were observed on the beach however some yachts were anchored nearby.

# Results-Chemical Parameters

- **PAH** (Polycyclic Aromatic Hydrocarbons)-Exceeded PWQO at Stations 1 and 5
- PAH's exceeded included Anthracene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Phenanthrene, Total PCBs
- **PCB** (Polychlorinated Biphenyls)-Total PCB's exceeded the PWQO value of 0.001 ug/L at Station 1 and with a value of <0.06 ug/L.at Station 5.

# Recommendations

- Continue phosphorus monitoring through the Lake Partner Program (MOECC) at established sampling locations.
- Liaise with Magnetawan First Nation to share results
- Georgian Bay Biosphere Reserve Online Water Quality Monitoring Database
- Partnerships with Dorset Environmental Science Centre and/or Ontario Benthos Biomonitoring Network
- Additional surface water quality sampling to determine whether PAH and PCB exceedances are present in surface water quality in the area
- Education Programs to raise awareness of water pollution



# Questions

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