Continuous Water Quality Monitoring in Lakes: A New Brunswick Perspective

Don Fox June, 2007

Presentation Outline

- why lakes?
- how do we build a lakes network
- pilot project overview
- data collection and early results

Why Monitor Lakes Continuously

- <u>fish kills</u> pH, DO, temperature
- <u>point source discharges</u> compliance monitoring, long term-changes in water quality
- <u>shoreline development</u> effect on water quality
- <u>NB Water Classification</u> all lakes are AL class

Dissolved Oxygen

	Early Life stages	Other life stages
Warm Water Species	=/> 6.0 ppm	=/> 5.0 ppm
Cold Water Species	=/> 9.5 ppm	=/> 6.5 ppm

Trophic Status

 Defined as the status of biological productivity of the water of a watercourse based on measures of the secchi depth, chlorophyll a, or phosphorus, or a combination of them

Trophic Status

• The trophic status shall be stable or naturally changing; the water shall be free of algae blooms that impair use as habitat for aquatic life, use for primary contact activity or use for secondary contact activity

The need exists...

- How do we get funding etc?
- We've partnered on a university/government research project
- Groundwater/surface water interaction

Project and equipment
Initially funded for 2 years
Purchased 2 minisondes

Parameters include pH, Eh, DO, conductivity

Redox Potential

- Eh, ORP, re-dox
- Important for understanding geochemistry and oxidation/reduction reactions
- Sulphur, nitrogen, iron, oxygen, carbon and many metals



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Additional Equipment

- Groundwater samplers
- Temperature loggers
- Installed by diving











The learning curve

 Sonde settings needed to be optimized for ideal battery life









