Lakes After Hours:
Continuous Monitoring Of Lakes Bloomington and Evergreen Using Buoys

JILL MAYES, TONY ALWOOD AND RICK TWAIT,
CITY OF BLOOMINGTON WATER TREATMENT PLANT
Why Perform Continuous Monitoring?

- 24 hour coverage
- Ability to detect changes in water conditions and water quality
- Measures and reports data regardless of the weather
- Provides a possibility of detecting trends in time to respond proactively
- Results are as close as your mobile device
- Other lake users can benefit from lake data
What is Measured?

- Temperature
- Dissolved oxygen
- Percent saturation of dissolved oxygen
- Specific Conductance
- Turbidity
- “Total” algae concentration through fluorescence
- Phycocyanin (an accessory pigment in cyanobacteria) through fluorescence
Images from YSI/Xylem
Where the Buoys Are
Results are telemetered to a web server. The datalogger can be programmed to send text alerts if certain parameters fall outside acceptable limits.
Fluorescence Probes provide an index of phytoplankton density and makeup.
Evergreen Lake Fluorescence probe
Chlorophyll/Phycocyanin

Fluorescence Probe Chlorophyll (μg/l)

DateTime vs EXO2(Fluorescence_pct_FS)
DateTime vs EXO2(BGAPC_RFU)
DateTime vs EXO2(ODO_Concplus_mg_L)
DateTime vs EXO2(Temp_C)
DateTime vs EXO2(ODO_pctplus_pct)
Evergreen Lake Fluorescence probe
Chlorophyll/Phycocyanin

Date
Jun  Jul  Aug  Sep  Oct  Nov

Fluorescence Probe Chlorophyll (µg/l)

Percent Saturation Dissolved Oxygen

DateTime vs EXO2(Fluorescence_pct_FS)
DateTime vs EXO2(BGAPC_RFU)
DateTime vs EXO2(ODO_Concplus_mg_L)
DateTime vs EXO2(Temp_C)
DateTime vs EXO2(ODO_pctplus_pct)
Evergreen Lake Fluorescence probe
Chlorophyll/Phycocyanin

Date
9/10/17  9/14/17  9/18/17  9/22/17  9/26/17  9/30/17

Fluorescence Probe Chlorophyll (µg/l)

Percent Saturation Dissolved Oxygen

DateTime vs EXO2(Fluorescence_pct_FS)
DateTime vs EXO2(BGAPC_RFU)
DateTime vs EXO2(ODO_Concplus_mg_L)
DateTime vs EXO2(Temp_C)
DateTime vs EXO2(ODO_pctplus_pct)
FlowCAM results are used to assess the accuracy of the fluorescence probe estimates of phytoplankton density and population makeup.
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Where the Buoys Are
(and are planned to be summer 2017)

Loggers will be placed at two depths at the deep stations for both lakes.
Lake Bloomington Hobo Dissolved Oxygen/Temperature Logger Results
Mobile deployment platforms

- PAR at multiple depths
- 24 hourly samples at four depths (schedules permitting)
- Various locations
Questions?
Thank You
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Our Water Customers