Update on Cost-Effective Water Quality Monitoring Systems for Delaware

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Project Overview

Real-Time Measurement & Transmission of Water Quality Data

- Many researchers currently using YSI, Inc. *Data Sondes*
  - Integrated, multi-sensor, commercially available device.
  - Temperature, DO, pH, turbidity, salinity, etc.
  - Up to 15 parameters measured.
  - Serial communication
  - Not intended to integrate with other monitoring equipment and systems.

- Project Goals:
  - Whole-water column sampling
  - Real-time data transmission and display
  - Affordable
Typical Result

**Dissolved Oxygen**

![Graph showing dissolved oxygen levels over time and depth. The graph uses color coding to represent different concentration ranges. The x-axis represents time (hh:mm) from 15:30 to 00:30, and the y-axis represents depth (ft) from 0 to 8.]
Summary

What we know so far . . .

- Prototype device still in service.
- Hardware costs less than expected. ($4,000)
- Power consumption higher than expected.
- Real-time data transmission and whole water column sampling systems robust.
- YSI Data Sonde the weak link . . .
- The platform provides users the ability to remotely troubleshoot problems with the sonde.
- May need to consider building an additional device used for all sonde deployments:
  - Simple communication device
  - Facilitate remote dialog with data sondes
  - Allows for remote troubleshooting
Vision:

Real-Time Interactive Monitoring Systems

Host Computer and Web Server in Newark