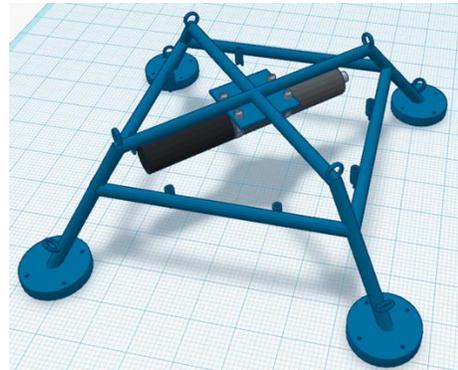


Source Water Protection - Early Warning System

A new data buoy and WIZARD monitoring platform designed and built for the USACE may prove to be a valuable tool in early warning systems for drinking water providers.



BY CHRIS MAY

When presented with the challenge of monitoring the effects of dredging on the local mussel populations the USACE reached out to the remote environmental monitoring sector. The challenge was to deliver a robust field deployable sediment deposition and scour platform capable of recording and sending data at a minimum of 5 minute intervals. The platform also had to have the capability to communicate with a multi-parameter datasonde delivering Temperature (F), Conductivity (uS/cm), Depth (m), pH, Turbidity (NTU), Diss. Oxygen Saturation (%), and Diss. Oxygen (mg/L).

When presented with these challenges Aridea Solutions engineered and delivered the **WIZARD** (Water Intrinsic Zoological Ambient Research Device) Platform. The following is a description of the **WIZARD Solution**:

- Aridea LLC furnished a communication buoy, eight (8) individual transducer SeaTek Ultrasonic Ranging Systems and a substrate monitoring platform that comprised a field deployable sediment deposition and scour platform combined with a multi-parameter datasonde capable of recording and sending data at a minimum of 5 minute intervals.
 - Data is made accessible through the internet via a cellular broadband connection to ARIDEA'S Thinginformer Software platform.
 - Data is also retrievable in a format compatible with Microsoft Excel.
 - The communications platform is run on battery power which is re-charged using solar panels.
 - The buoy is able to be deployed in the Ohio River at depths from 3 m to 20 m.
 - Eight (8) individual transducer SeaTek Ultrasonic Ranging Systems (info@seatek.com) capable of measuring changes in sediment of 1 millimeter

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with all communications hardware, electronics package, and cables being assembled and provided by Aridea Solutions.

- Transducers housed in stainless steel 0.5 inch in diameter, 1.0 inch in height.
- Substrate monitoring platform capable of being deployed without divers in 3 m to 20 m of water on the Ohio River from a boat.

After successful implementation of the WIZARD solution it quickly became apparent that there were myriad implications for real-time source water monitoring.

The Aridea Solutions **WIZARD** Platform provides an incredibly flexible solution that allows for the collection and aggregation of multiple environmental parameters through a single interface utilizing best of breed, off-the-shelf sensor technology. This flexible solution is achieved by Aridea Solutions sensor agnostic communication and data delivery system.

Due to the flexibility of this sensor agnostic design the WIZARD platform can easily be configured to meet the needs of any lake or reservoir early alerting system. With sensors placed at various levels in the water column we are then able to more accurately alert on potential threats regardless of if they are lighter or heavier than water.

This WIZARD platform flexibility, working in conjunction with Aridea's ThingInformer software, allows for real-time data alerting via text, email or phone call. These early alerts can make all the difference in the protection and possible prevention of contamination of an entire drinking water system.

“Simply put, we can connect to and deliver data from any industrial protocol sensor.” CM

