

March 30, 2017



Integrated Systems & Services for Stormwater Management

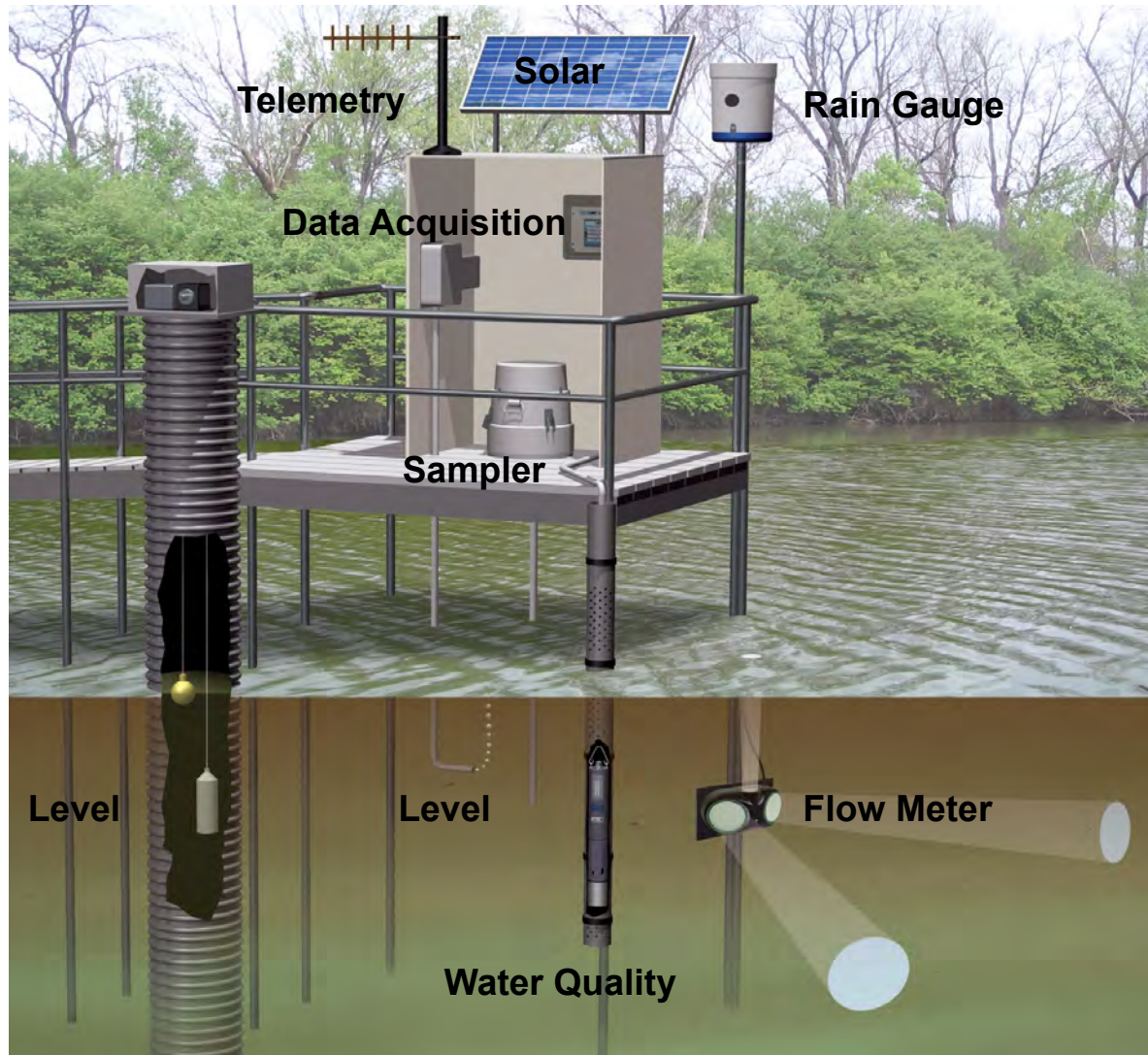
2017 ILMA Conference



Why Stormwater Monitoring?

- Stormwater plays a big part in surface water pollution. As stormwater runoff flows over surfaces it can accumulate chemicals, debris, and other pollutants.
- So, why do we need Storm Water Monitoring?
 - **Data used from stormwater monitoring can be used to develop action plans to reduce the amount of polluted water that could be harmful to wildlife and communities
 - **Stormwater monitoring projects can be conducted for a variety of reasons such as Municipal Separate Storm Water Sewer System (MS4) compliance, Total maximum Daily Loads (TMDL), construction impact, and a variety of perimeter monitoring scenarios for contaminants such as heavy metals.

Okay, so what might a stormwater site look like?



What parameters are important to measure?

- Stormwater sites encompass a broad range of parameters from simple rainfall and turbidity measurements, typically encountered during construction practices

But can also include:

- open channel flow
- Water level
- pH
- Temperature
- Conductivity
- Dissolved Oxygen
- Nutrients (Nitrate, Phosphorous, Chloride, Ammonium, Ammonia)

YSI EXO Water Quality Sondes

EXOwater.com



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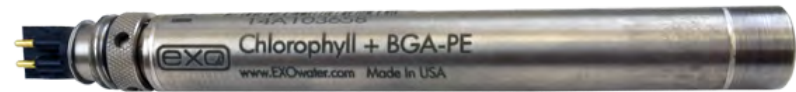
EXO Smart Sensors

EXOwater.com



Conductivity & Temperature

- Improved Temp. accuracy and response
- Improved Conductivity range
- Required for all monitoring applications



Total Algae

- Two sensors in one
- Chlorophyll + BGA-PC or PE



Turbidity

- Increased range without loss of accuracy



Wiper System

- For use with EXO2 platform
- Superior anti-fouling
- Faster sampling response



[EXO Smart Ports – Smart Sensors](#)

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EXO Smart Sensors

EXOwater.com



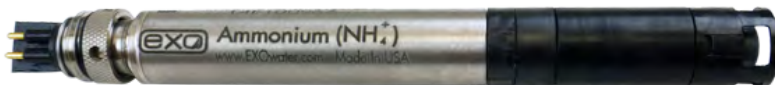
Ph + ORP

- Removable probe head
- Guarded and Unguarded versions



Fluorescent Dissolved Organic Matter (fDOM)

- New for YSI



Ion Selective Electrode

- Replaceable module
- Ammonium, Chloride, Nitrate



Optical Dissolved Oxygen

- Improved accuracy above 200%
- Faster response
- Screw-on membrane



[Replacing pH/ORP Sensor Module](#)
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[Replacing ODO Sensor Cap](#)
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EXO2 Central Wiper







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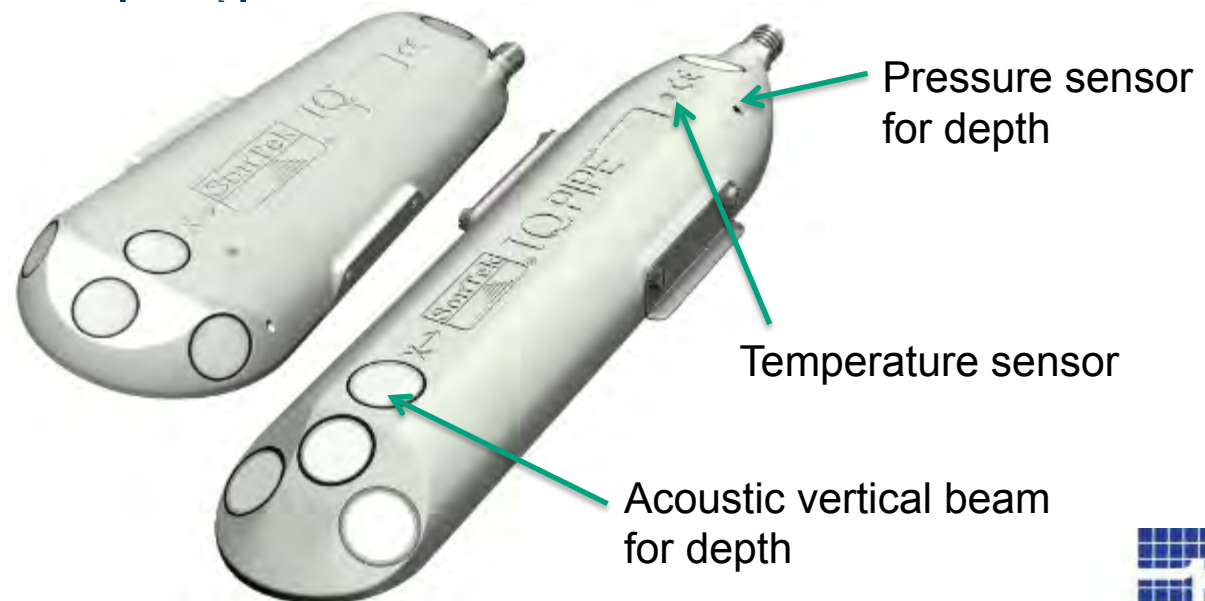
The SonTek-IQ Series

For water velocity, level, flow, and total volume

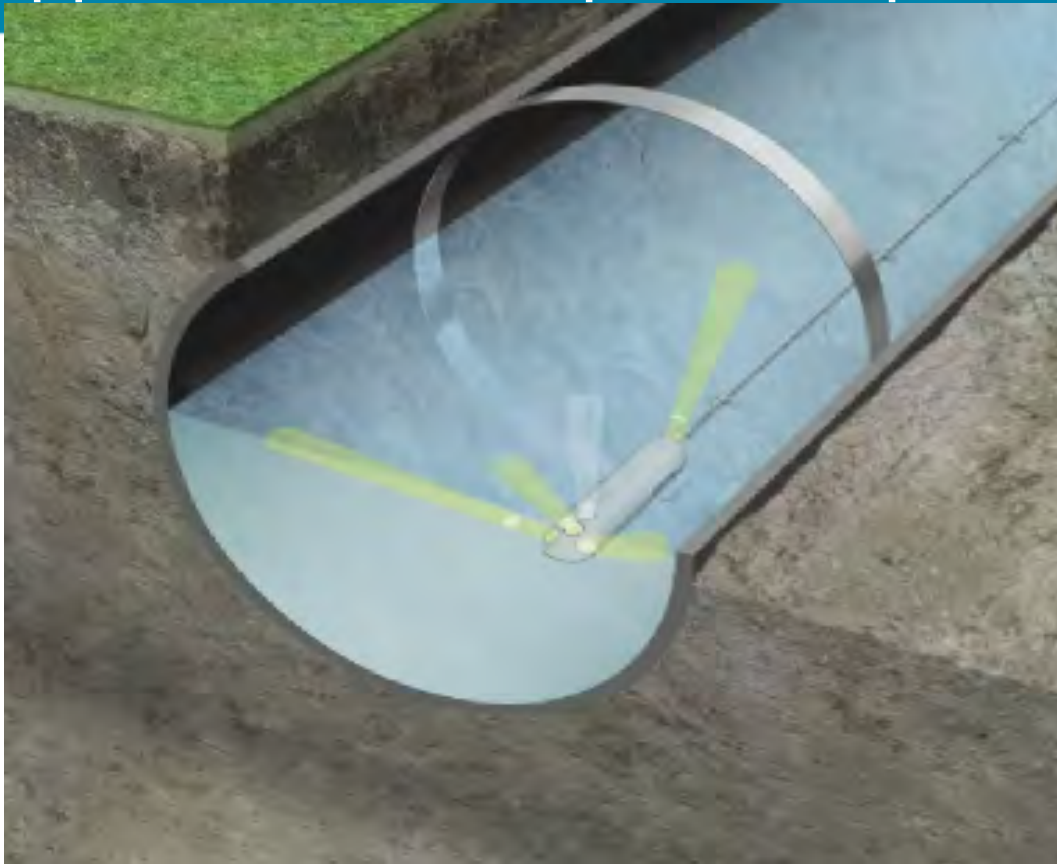


SonTek Up-Looker

- Bottom mounted / up-looking pulsed Doppler profiler (3MHz)
 - Measures water level (two ways—pressure and acoustic)
 - Measures water velocity
 - Calculates flow and total volume
 - Measure temperature
- Adaptive velocity sampling via SmartPulse^{HD} (more in a minute...)



Application/Concept—IQ Pipe



Works in either partially full, completely full, or pressurized pipes.

Large dynamic range, working in pipes from 0.46 m up to 5.0 m (1.6 to 16.4 ft), and composite cross sections—pipes of any shape, even irregular ones

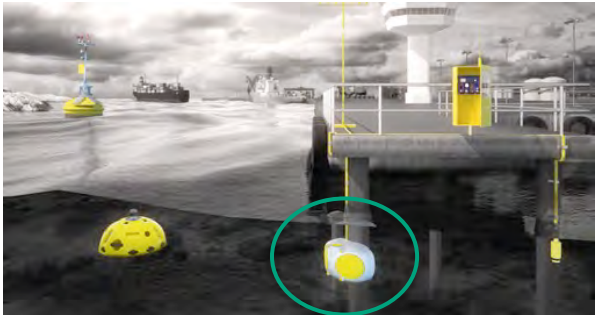
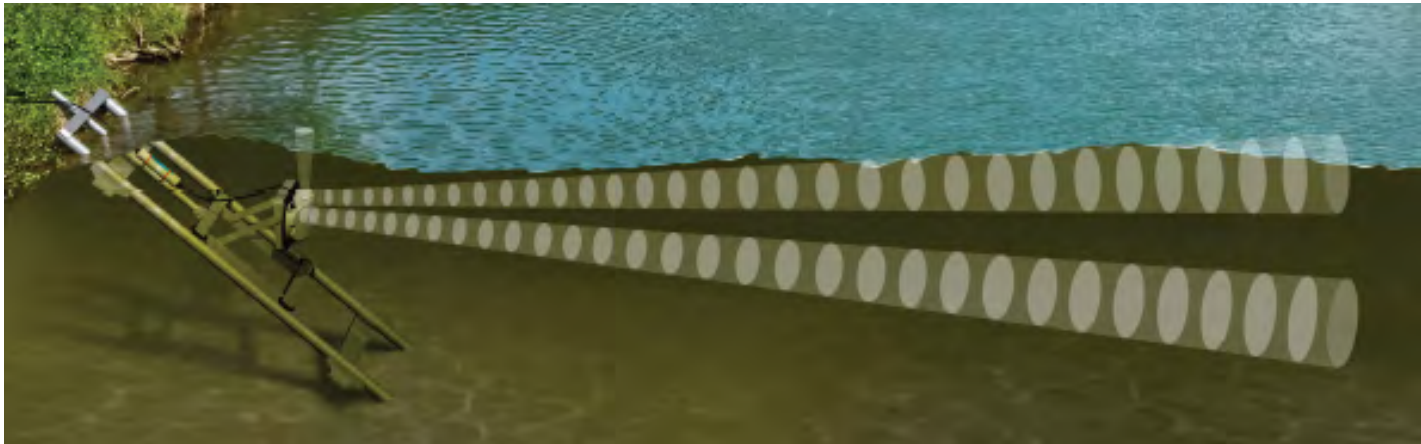


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The SonTek-SL (3G): Advanced solutions to your flow measurement challenges



What is a Side-Looker?



General Advantages of Side-Looking Dopplers



- Ease of access, “safety first”
- Low-cost--no divers, no underwater batteries, no boat trips for maintenance
- No interruption in plant operations
- No interruption in water delivery to clients/stakeholders
- A horizontal profile is desired in some cases

Hydropower

- Delivery, supply, requirements
- Structural evaluation and monitoring

Flood and natural disaster warning networks

- No time for manned response— data ASAP

Irrigation

- Scarcity, disputes and litigation

Discharge continuous monitoring

- Data are on the web for EVERYONE to see at anytime— users are held accountable for their data.

YSI Water Level Sensor- Non-Contact Radar

YSI Nile Radar: non-contact water level sensor; Ideal for sites with existing infrastructure and clear line of sight to water surface



YSI Water Level Sensor- Continuous Bubbler

The Amazon bubbler is ideal for long-term, water level monitoring sites. It can be used as a stand-alone system with internal data storage, or as a sensor connected to any manufacturer's data logger. Easily configure and collect data using the browser-based graphical user interface with all standard web browsers on PCs, tablets and smart phones.



Site Examples: Woolpert, South Carolina

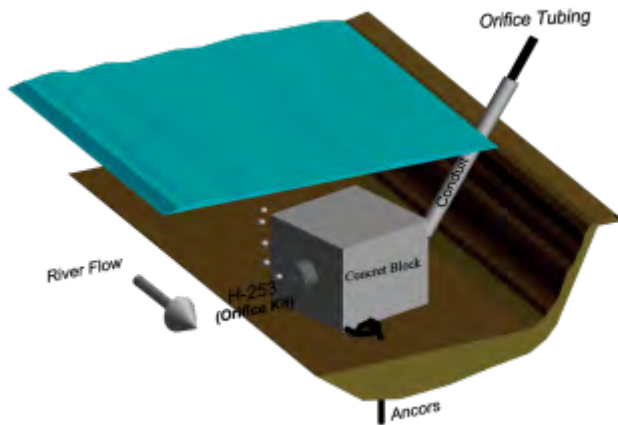
- YSI ISS Construction group installed 12 stormwater monitoring sites for Woolpert. The Construction group has built over 100+ of these type sites across the SE for various organizations such as SFWMD
- Sites are integrated with YSI water quality multi-probes, nutrient analyzers, level sensors, automated water samplers and real-time telemetry



Radar Level Sensor Installation



Bubbler Level Sensor Installation



Bubbler Orifice Line Installation



Bubbler Compressor and DCP



Tipping Bucket Rain Gauge Installation



Three Pole Mast / Rain Gauge Station



Two Pole Mast



Angled Well



Bridge Mount



Wall Mount



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Walkway



SonTek Install



Stormwater



DCP Deployment Solutions



GOES Portable Solutions



Permanent Deployment Solutions



Professional Meteorological Stations



Please let me know if you have any questions or would like additional details about YSI water quality instruments, data collection platforms, integrated systems and services, and SonTek flow instruments.

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