

**Poster #21-54****Long-Term, Real-Time Monitoring of Water and Sediments using Microbial Sensors**

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A novel sensor system was developed allowing long-term monitoring of natural and man-made environments. The monitoring system measures the potential difference between the biofilm populating the surface of an inert electrode and a reference electrode. The system has several very significant advantages including: 1) large sensor arrays can be deployed in the field, 2) the sensors require no maintenance or calibration, and 3) the sensors may be deployed in natural waters, saturated or unsaturated environments, allowing monitoring of diverse environments.

The sensors are interfaced with signal/communication (cellular) electronics to allow real-time data collection and storage of the data in cloud-based storage systems. The system has been successfully deployed in natural environments (rivers, ponds), wastewater treatment facilities, contaminated aquifers and aquaculture.