



Adaptive Sampling RAS Tracks Plume Events

Scientists from the University of Wisconsin deployed a McLane RAS-500 with adaptive sampling to study bacterial loading in the Great Lakes area.

how to control urban stormwater and sewage overflows that invade the Great Lakes.

These overflows are also considered a major source of contamination affecting United States surface water.

The team at UW wrote an application program interface (API) that commands RAS-500 sampling events to start automatically and provides user monitoring of sampling status and battery life.

More than .51cm of rainfall from at least 6 buoy stations triggers sampling to begin and sends a message to alert researchers. One liter samples are collected every two hours until stopped by the operator. These Adaptive sampling studies will continue.

Photos from the Deck

McLane is always happy to receive your deployment photos and will trade you t-shirts! Email pictures to mclane@mclanelabs.com.



At left: Univ. Wisconsin Researchers with RAS
Photo: S. Bingham, M. Silva



Above: Adaptive RAS Mooring Assembly

The buoy based system collected samples using activity triggered, time-series sampling. Researchers analyzed bacterial concentrations and found significant patterns of contamination events linked to heavy rainfall. Tracking plume event patterns can help researchers better understand

Photo: Univ. of East Anglia



RAS-500 Weddell Sea, Antarctica

Photo: Josef Werne



WTS-LV Lake Malawi, East Africa

Photo: Josef Werne



Sediment Trap Lake Superior, USA

McLane Instruments Around the World

Samplers and profilers will soon be deployed in new locations around the world as McLane delivers many instruments internationally this Winter. The first McLane Sediment Traps purchased in Spain were ordered by Grafinta S.A. and recently delivered to the University of Vigo. WTS-LV samplers were sold to Germany and Australia and a Zooplankton Sampler (ZPS) was delivered to France. China has also purchased MMP's, WTS-LV samplers and Sediment Traps.

Customers from the Proudman Oceanographic Laboratory in Liverpool, UK also recently visited McLane in Falmouth, MA for sampler training. Proudman is deploying RAS-500 and RAS-100 samplers in the Celtic Sea to study how short wind events mix nutrients from the deep water upwards into the warmer surface layer.



Above: Proudman Researchers Practice with a RAS-500



McLane Research Laboratories, Inc.
121 Bernard Saint Jean Drive
East Falmouth, MA 02536 USA

ADDRESS SERVICE REQUESTED

Studies with McLane Samplers Pursue Environmental Evolution

Scientists from Large Lakes Observatory, University of Minnesota Duluth, are using McLane samplers to collect and study a microbial species from lakes around the globe. Pursuing Crenarchaeota, a single-celled archaeal microorganism, has led researchers from Lake Superior in the United States to Lake Malawi in East Africa. Their mission: to answer basic but important questions including why and how the molecular fossils left by these microbes reflect lake surface temperatures from the past.



Sediment Trap, Lake Superior



WTS-LV, Lake Malawi

(Photos: Joe Werne, LLO, U-Minn-Duluth)

Once thought to inhabit only harsh conditions of extreme heat, salinity, or no oxygen, traces of these elusive microorganisms have been discovered in the cool, oxygen-rich waters and sediments of global oceans and lakes.

Although living cells of the non-thermophilic Crenarchaeota species have been difficult to isolate, molecular fossils have provided some interesting paleoenvironmental data. Some Crenarchaeota membrane lipids change their structure as a function of temperature, making this species a possible temperature proxy in studies of the Earth's evolution. Already, studies have reconstructed temperatures from 700, 25,000 and 70,000 years ago.

A McLane Sediment Trap has been collecting samples in Lake Superior for Crenarchaeota studies since 2005. In 2009, a McLane WTS-LV was deployed in Lake Malawi, East Africa. Lake Malawi work has resulted in several successful prehistoric temperature reconstructions. Learn more at www.d.umn.edu/unirel/homepage/08/crenarch.html.

2010 Winter Conferences

February 22-26	March 9-11	March 9-11
AGU Oceans	Buoy Workshop	OI '10
Portland, ORE USA	Monterey, CA USA	London, UK