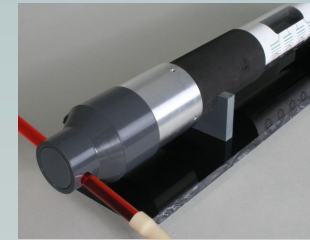


Customer Newsletter 1st Quarter 2010

bbe MOLDAENKE AS PART OF AQUABIOTOX PROJECT

Online Monitoring of Drinking Water based on a Biological Broadband Spectrum Sensor with Automatic Image Evaluation

Water networks, and especially drinking water supplies, are exposed to deliberate or accidental contamination and public health risks need to be detected in due time. This is why drinking water regulations provide for the examination of special germs and chemical substances on a regular basis. But today's analytical techniques are time-consuming and not particularly suited to warning the population of contamination risks in time. Thus, the early identification of contaminants in drinking water is very important.



ABOVE: head with flow-through device
BELOW: Bacteria Torch for rapid detection of RFP and GFP Fluorescence

The **AquaBioTox** project aims to develop and produce such a system which responds quickly and reliably, is robust against false alarms, easy to handle without scientific qualifications or intensive training. It is economical in view of the costs of purchase and maintenance. Its operating principle is as follows: highly sensitive, modified biological micro-organisms are exposed to drinking water taken from the main water current, their reaction is continuously monitored by a detector and the data is automatically analysed in online. Any characteristic changes, for example in vitality, colouring or glowing, are automatically indicated. This combined broadband sensor concept can be used not only to diagnose contamination by hazardous substances but also in more general quality and safety checks on water supply facilities.

Ongoing work is currently dealing with the evaluation of the biological sensors as well as with the automatisisation of the processes.

The project aims to show the efficiency of the sensor system at a test track of the Berlin Waterworks.

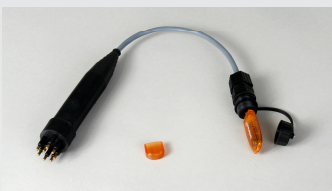


PRODUCT DEVELOPMENT

ALGAE TORCH

Since its launch in 2008 the AlgaeTorch has proven itself in bathing water monitoring throughout Europe. It has been demonstrated across Europe at trade shows and research institutions (most recently OI 2010 in London in March) and deployed in various in situ applications.

Spring is now rapidly approaching and so we have added a valuable accessory to the range for the A-Torch: **a handy, lightweight, nylon shoulder bag.**



FLUOROPROBE

The FPIII was given many new features during its revamp in 2008: lighter cables, more memory, a hydro-wiper unit, etc. It is however also possible to extract the data directly from the FP using the USB adapter + flash drive (see picture left) supplied with each probe. To do this, simply attach the cable to the end of the probe and insert the flash drive into the USB connector at the other end. The data are automatically downloaded onto the drive according to the date and time of measurement.

TOXPROTECT 64 IN RIGA

Water quality has been monitored by the ToxProtect 64 fish biomonitor in Riga, Latvia now for the last eight months. The fish biomonitor was installed to monitor raw water quality to the Daugava WTP and raised several alarms including one as a result of an incident from a pig farm some 20 km upstream of the sampling point that was not picked up by conventional monitoring and analysis.

The ToxProtect 64 is a fish biomonitor used to detect toxins in drinking water in many other countries around the world – Germany, Netherlands, Israel, USA and this year possibly India.



AQUALIFE 2010

This event has been a well-established and acknowledged workshop for environmental survey and application since 1998. People in the world are aware of drastic economic and environmental changes. We believe it is worth introducing and discussing some aspects and tools together with their impacts on society and nature. Clearly, we have to work together more closely to find solutions for a viable future.



Follow our invitation and join us at our next Biomonitoring Workshop and AquaLife 2010 from May 31 until June 2 in Kiel and Kronshagen, north Germany.

Current list of presenters:

- Dr. Levent Piker, Coastal Research & Management, Kiel.
Nutrient charge and eutrophy in aquaculture.
- Prof. Dr. Hazem Kalaji, Univ. Warsaw, Poland.
Chlorophyll Fluorescence: a useful tool for biological, agricultural and aquatic research.
- Dr. Tobias Böhme, 4H Jena.
Workhorse on Ferries – the FerryBox.
- Dr. Daniela Baganz, Dr. Georg Staaks, IGB Berlin.
Fish 'n' Chips – first results in health management of aquaculture.
- Dr. Wido Schmidt, TZW Dresden.
Fluorescence as a tool for the characterisation of water.
- Prof. Dr. Peter-Diedrich Hansen, Technical University Berlin.
Biosensor systems for the rapid and accurate detection and quantification of algal blooms and cyanobacterial toxins.
- Prof. Dr. Valerii Tonkopii, Institute of Limnology, Russian Academy of Sciences, St. Petersburg, Russia.
A new principle of xenobiotics bioidentification in fresh water.
- Dr. Neil Ellwood, Univ. of Rome, Italy.
Phosphatase activities of mosses, algae and cyanobacteria as biomonitoring tools for upland water nutrient status.
- Lothar Korn, AJ Blomesystem GmbH, Jena.
ENMOhydro - developments in dynamic, continuous and automated water quality monitoring.

ALSO:

Come and join us for a fantastic boat trip on Kiel Bay and our traditional barbecue at the Westensee (lake near Kiel). Enjoy fine music, good food and a very relaxed atmosphere!

LITERATURE ON THE WEB:

A selection of articles which have come to our attention recently.

For a copy or more information, please contact the authors. Here the links to the electronic abstracts:

Michael Twiss et al. «Plankton dynamics along a 180 km reach of the St Lawrence River from its headwaters in Lake Ontario.» *Hydrobiologica*, Jan. 2010. <http://www.springerlink.com/content/n66388045001p35t/fulltext.pdf?page=1>

Fabrice Lizon, Luis Félipe Artigas. «Dynamique du phytoplancton techniques alternatives et approches « haute fréquence.»». Journée Agence de l'Eau, 24me Novembre 2009.
<http://www.eau-artois-picardie.fr/IMG/pdf/4 - Fabrice Lizon.pdf>

Cecchi Philippe et al. «Cyanobacteria, cyanotoxins and potential health hazards in small tropical reservoirs.» Small Reservoirs Project, Toolkit, May 2009.
http://www.smallreservoirs.org/full/toolkit/docs/III%2006%20Cyanobacteria_ML.pdf

Anne Rolland. «Dynamique et diversité du phytoplancton dans le réservoir Marne (Bassin versant de la Seine)» L'INRA de Thonon-les-Bains et décernée par l'Université de Savoie, Mai, 2009.
<http://afimno.free.fr/fichiers/RESUMES/Rolland.pdf>