AQUEST Aquatic Environmental Stress Research Group

Passive Sampler Applications

Background

Micropollutants are chemicals including pesticides, pharmaceuticals and personal care products (PPCPs) and PFAS. When they are released into waterways, they become contaminants. Due to their low concentration and intermittent presence/release, they can be difficult to detect using traditional sampling methods. Individual water samples only provide a snapshot of what is present at a particular time, therefore increasing the likelihood of not being able to detect all micropollutants present. A cheaper and more effective option is to use passive samplers.

Passive Samplers are devices that can provide a time integrated measurement of micropollutants. Different types of passive samplers can be used, in parallel, to target different pollutants based on their chemical properties and uptake through selective membranes. Deployment time is usually two to four weeks but can be tailored to different applications depending on the need.

Passive samplers and housing before and after deployment

Benefits of Passive Samplers:

- Can detect low concentrations of micropollutants
- Can capture intermittent pollution events
- Can be deployed prior to an anticipated storm or spill event, to capture the event that may be too dangerous to sample during, using traditional methods (i.e. grab samples).

Application

Initially, a screen is done for a vast number of contaminants. Then, if needed, a follow up for those chemicals of interest and determination of a time-weighted average concentration can be done.

Passive samplers can be deployed to detect contaminants in a range of aquatic environments, including:

- **Surface water**
- **Groundwater**
- **Stormwater**
- **Wetlands**
- **Treated and untreated sewage (including detection of ERS spills)**
- **Recycled water**

This methodology can also be used successfully for the identification of sources of pollutants.

AQUEST Capabilities

Our experienced multi-disciplinary research team has developed a comprehensive suite of tools and techniques for pollution detection and catchment assessments. AQUEST employs cutting edge science to measure the impacts of contaminants and identify their sources and have been a leader in developing and applying novel techniques, including passive samplers, for sourcing aquatic pollutants.

For further details contact: AQUEST@rmit.edu.au or Monica Tewman 9925 9587

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The Aquatic Environmental Stress Research Group identify and address the ecological impacts of pollution in aquatic environments

http://www.rmit.edu.au/aquest