

# Modelling, Managing and Regulating Emerging Contaminants in Surface Waters

30<sup>th</sup> April 2019, The Studio, Manchester

09:00 – 09:30 Registration

## Session 1. Lessons learnt

### **Lessons Learnt: Anglian Water's Catchment Management Approach**

*Richard Reynolds, Senior Agronomy Advisor, Anglian Water*

- Effective management of agricultural contaminants starts with data and engagement at a local/sub-catchment scale
- Catchment management relies on good people - who understand challenges from all angles i.e. water company, technical advisor and farmers perspectives
- Every farm business is different so lateral thinking is needed to develop solutions which are technically, financially and practically appropriate

### **Smarter Water Catchments in the Evenlode – lessons learnt from two years of the Thames Water phosphorus catchment management trial**

*Monica Barker, Senior Environmental Scientist, Infrastructure – UK & Europe, Atkins*

- Developing the evidence base to understand cost-effectiveness
- The role of relationship building in successful farmer engagement
- Developing new ways of working that provide multiple benefits

### **Payment for Ecosystem Services – working from Farm to Tap**

*Dr Jodie Rettino, Catchment and Biodiversity Lead, Severn Trent Water*

- Farm to Tap is part of STW's wider Catchment Management Programme Farming 4 Water
- The scheme's focus is working in partnerships with farmers, land managers and other organisations to reduce diffuse pollution in raw water courses, particularly metaldehyde
- The scheme encompasses the principles of PES (paid ecosystem services) with the overall aim of changing farmer behaviour and promoting ownership of the river within their catchments
- This approach has helped drive long lasting behavioural change and sustainable improvements in water quality

**Panel discussion**

**Morning break**

## Session 2. Flexible approaches

### **Wessex Water's Alternative Approach to the WINEP**

*Dr Sean Tyrrell, Catchment Scientist, and Dr John Bagnall, Water Quality Modeller, Wessex Water*

- Under the WINEP, a potential £350 million of investment in Water Recycling Centres (WRCs) would be required to meet future phosphorus consented permits for Wessex Water.
- A Wessex Water investigation found that £95 million of this investment should be deferred. The rationale for this is that the SA-GIS model, upon which permits are determined, was either under or over estimating the impact of WRCs upon waterbodies in the areas investigated.
- One way in which this will be addressed, is to utilise modelling in an innovative way to support management of a hybrid' asset/catchment nutrient balancing (offsetting) approach.

### **Utilising Flexible Permitting Approaches in England – Progress, Current Approaches and Future Application**

*Barrie Howe, Senior Advisor – Water Quality, Environment Agency*

- Catchment permitting and catchment nutrient balancing are new, innovative approaches to achieving water quality objectives. These utilise flexibility within the existing discharge permitting framework and offer great potential to achieve water quality objectives, whilst reducing cost and carbon emissions.
- The boundaries for adopting flexible permitting approaches are an important factor in ensuring that water quality objectives are achieved and the approaches can be illustrated with real examples that are being implemented in English catchments.
- In future these and other flexible permitting approaches could be applied to other contaminants such as the micro-pollutants, organic chemicals and metals. This could help take into account the considerable uncertainty and variation in treatment efficacy for micro-pollutants that has been demonstrated by the Chemicals Investigation Programme.

### **Panel discussion**

### **Networking lunch**

### **Session 3. Soil management and phosphorus stewardship**

#### **Changes in farming practices: winter cover crops and the role of behavior change**

*Dr Miller Camargo-Valero, School of Civil Engineering, Leeds University*

- This presentation will introduce the benefits arising from the implementation of cover crops and present a case of study in North Yorkshire, where farmers have successfully adopted such practices with clear benefits to cost reduction, particularly with regard to the use of fertilisers.

#### **Filter socks and their development as a new mitigation method for agriculture**

*Dr Alex Cooke, Catchment Scientist, Severn Trent Water*

- Previous research has developed and adapted filter socks for concurrent removal of sediment and phosphate.
- This presentation will outline their application within an agricultural catchment in Herefordshire, as edge-of-field structures.
- An overview of the current and upcoming research will outline how they are being trialled in other field placements, can be also be used for gains in biodiversity, and at non-agricultural high-phosphate loading sites in urban catchments.

### **The importance of better stewardship of Phosphorus in the Resilience and Sustainability of the UK Food System**

*Dr Chris Lyon, School of Earth and Environment, Leeds University*

- This presentation will present arguments for the benefits from a better stewardship of P (consumption and losses), as it can firstly increase the resilience of the UK food system to P

shocks by reducing UK reliance on P imports and secondly optimize the intensification of agriculture with minimal impact on water quality and increase the value of the ecosystem services dependent on water quality.

**Panel discussion**

**Afternoon break**

**Session 4. Meeting the challenges of emerging contaminants**

**The Catchment Management and Modelling Platform and the future of integrated data modelling platforms**

*Prof Bridget Emmett, CEH Science Area Lead for Soil Research & Head of Site, NERC's Centre for Ecology and Hydrology, Bangor*

**Microplastics in local rivers**

*Prof Jamie Woodward, Department of Geography, The University of Manchester*

**Panel discussion**

**Close**

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