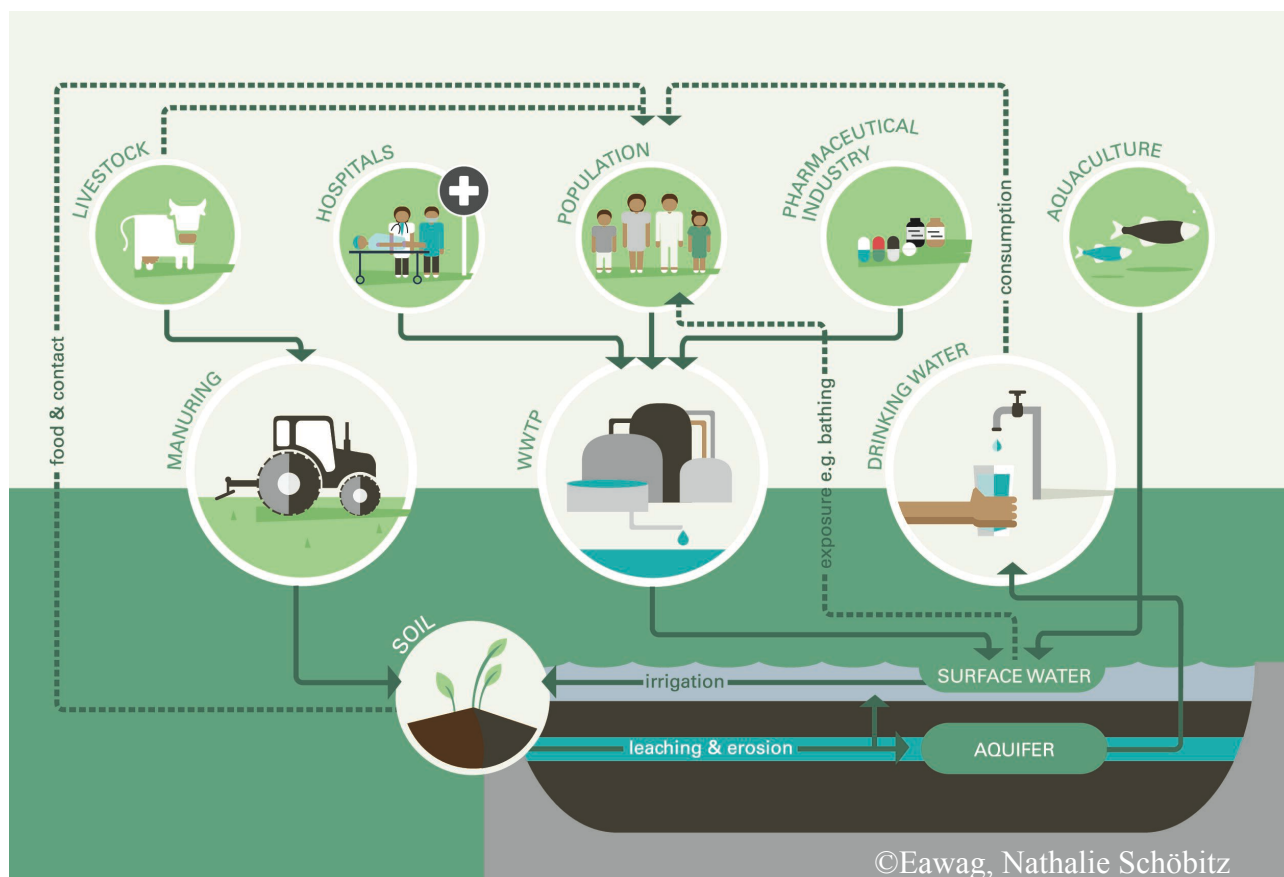


Antibiotics in the Water Environment: **- Occurrence, Detection, Fate**



Antibiotics are widespread and persistent contaminants in aquatic environments. They occur in urban water cycles (in surface, groundwater, drinking and waste waters) and in association with intensive animal rearing. Typically between 30–90% of the active compound gets excreted. Globally, two-thirds of antibiotics produced are used on animals. With increased worldwide usage of antibiotics there is a growing risk of new drug-resistant microorganisms evolving when they interact with bacteria present in the water. This can lead to formation of so-called ‘superbugs’ and is currently of serious health concern. Antibiotics and their metabolites are also under scrutiny over their wider ecological impact and interaction with water treatment systems. Consequently the need for stricter regulation of antibiotics in the environment is under review. The European Commission has recently included antibiotics on the updated Watch List under the Water Framework Directive and the UK Water Utility companies have an active Chemicals Investigation Programme to quantify the environmental inputs of selected antibiotics from wastewater outfalls across the UK. The workshop will address the impact and fate of antibiotics in aquatic systems, mechanisms involved in the selection for antimicrobial resistance and implications for water treatment.

AGENDA

09:50 - 10:20 Registration and refreshments (Fish Room)

Morning Session 10.20 - 13.00 (Science Conference Room)

10.20 Welcome and information for the day. Opening Remarks.

WSF Committee.

10.30 “Pharmaceutical contaminants in the aquatic environment: Perspectives on occurrence and implications on a global scale.”

Dr John Wilkinson, University of York Department of Environment & Geography.

11:00 “AMR in the environment and its relevance to environmental regulators.”

Dr Andrew Singer, Centre for Ecology & Hydrology, Wallingford.

11.30 “Considering the environmental dimension of antibiotic resistance using an integrated theoretical framework.”

Prof William Gaze, University of Exeter Medical School.

12:00 “Predicting selective windows in wastewater treatment plants: effect of plasmid transfer versus antibiotic concentration.”

Dr Jan-Ulrich Kreft, University of Birmingham School of Biosciences.

12:30 “Antibiotics in the environment and their stereochemistry: from nanoscale to catchments.”

Dr Barbara Kasprzyk-Hordern, Dept of Chemistry, University of Bath.

13:00 - 13:55 Buffet Lunch (Fish Room)

Afternoon Session 14:00 - 16.00 (Science Conference Room)

14.00 “Antimicrobial resistant bacteria in the drinking water: chlorine tolerance, stress and its selection.”

Dr Charles Knapp, University of Strathclyde.

14.30 “Prevalence and removal of selected antibiotics through conventional wastewater treatment processes.”

Mark Craig, Severn Trent Water Ltd, Coventry.

14:50 “Antibiotics - a view from the Environment Agency.”

Mark Sinton, Environment Agency, Wallingford.

15.00 “Antimicrobial resistance: Are wastewater treatment plants a problem or a solution?”

Prof David Graham, Newcastle University School of Engineering.

15.30 Final discussion.

Tea/Coffee Available (Fish Room)

16.00 Close.

Conference Aims

This workshop brings together experts to review current research aimed at understanding the significance and extent of antibiotic pollution through its impact on freshwater ecology, wastewater treatment, and the likely contribution this makes to the development of antimicrobial resistance (AMR) mechanisms in bacteria. The role of the environment in AMR has been listed by UNEP Frontiers 2017 as the first of six emerging issues of environmental concern, and is recognised as a serious and growing threat to global health. The requirement for closer monitoring of antibiotics and their metabolites in water will be presented, together with evidence enabling risk assessment evaluation of their impact on the environment and health. A key part of the workshop will be to discuss the need for tighter regulatory controls.

Who should attend

- Environmental regulators, planners and policymakers
- Drinking water regulator
- Water treatment engineers
- Freshwater biologists
- Water Industry personnel
- Water quality managers
- Groundwater specialists
- Veterinary services and Animal Welfare
- Agriculture and Aquaculture sectors
- Analytical services
- Public health employees & pharmaceutical industry

For further information please visit RSC Conference and Events website:
<http://www.rsc.org/events?MemberNetwork=73&PageTitle=73>

For further information on the Water Science Forum membership and activities please see:

<http://www.rsc.org/Membership/Networking/InterestGroups/WaterScience/index.asp>

Or write to:

Hon. Secretary
Water Science Forum
c/o The Royal Society of Chemistry
Burlington House, Piccadilly
London W1V 0BN

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Registered Charity Number 20789

REGISTRATION FORM
(Please complete a separate form for each delegate)

Registration includes attendance at the speaker presentations during the morning and afternoon sessions, and refreshments throughout the meeting. Free WiFi access is also available to delegates on the day.

Registration fees are as follows:

| Delegate Category | Early bird (by 11 October 2019) | Standard (by 8 November 2019) |
|-----------------------------|------------------------------------|----------------------------------|
| Members of RSC, IChemE, SCI | £105 | £145 |
| Non-members | £155 | £185 |
| Student/retired members | £55 | £70 |
| Student non-members | £70 | £85 |

Poster Display: Offers of posters are welcome (A0 size).

Exhibitors: Table top display and trade stands are also welcome by arrangement (please contact Adrian J Clark adrian.clark@btinternet.com).

****Sponsorship opportunities are available.**

Full Details: <http://www.rsc.org/events/detail/40760/antibiotics-in-the-water-environment-occurrence-detection-fate>

Online Registration: <https://www.eventbrite.co.uk/e/antibiotics-in-the-water-environment-occurrence-detection-fate-tickets-66946559963>

Final booking deadline, unless paying by cheque, is 8th November.
A £10 booking charge will apply if payment is not received with registration.

If you prefer to pay by cheque, or for late payments, please complete the form below (cheques payable to "RSC Water Science Forum"):

Title (Dr, Mr, Mrs etc)First Name(s)

Surname Job Title

Organisation/Affiliation

Address

.....Post Code

TelephoneMobile.....

Email

Do you have any special dietary or other needs? If so, please specify below:

.....

RSC/SCI/IChemE Membership Number (if applicable)

The completed form should be returned to the Treasurer:

Mr Jonathan Mace, Quality Manager
ALS Life Sciences Division,
Environmental Unit 11,
Silkwood Park, Janes Hill
Wakefield WF5 9TG, email: jonathan.mace@ymail.com.

For all enquiries regarding the event please contact:

Adrian J Clark Telephone: 01326 240194, email: adrian.clark@btinternet.com.