

Microbiology Society submission to the UK Parliament's Environmental Audit Committee 'The Environment in Focus' inquiry

The Microbiology Society is a membership organisation for scientists interested in microbes, their effects and their practical uses. Based in the UK, but with a worldwide membership of over 8000 expert microbiologists, we are one of the largest microbiology societies in Europe. Our principal goal is to develop, expand and strengthen the networks available to our members so that the science of microbiology provides maximum benefit to society.

The Microbiology Society is leading the way in tackling AMR through its ambitious and wide-reaching Knocking Out AMR project. This initiative promotes innovative solutions to AMR by fostering cross-sector collaboration and driving policy action.

Our submission is based on feedback from our members and has been reviewed by Dr Jonathan Cox (Aston University) and Dr Catrin Moore (City St George's, University of London).

AMR in wastewater

Antimicrobial resistance (AMR) is an urgent global threat, linked to 35,200 deaths annually in the UK and costing the NHS over £180 million each year. Wastewater – which often contains antimicrobials, micro-organisms and resistance genes – creates ideal conditions for AMR to emerge and spread, making it a major driver of this problem.

Rivers and seas are contaminated by household, industrial, agricultural and hospital wastewater via sewer overflows, septic tanks and treatment plants. An Environment Agency 2022/23 study detected antimicrobials, resistant micro-organisms and resistance genes in all sites tested across three rivers.

Despite growing concerns about AMR, bathing water quality is assessed using only levels of faecal indicator organisms (FIOs) such as *E. coli* and Intestinal Enterococci, overlooking other pathogenic and potentially resistant micro-organisms.

UK water is the backbone of many industries, such as drinking water production and fisheries, alongside recreational activities and wildlife. Without action, untreated wastewater will continue to accelerate the spread of AMR, threatening human and animal health, as well as the environment.

We call for the Government to:

- Mandate continuous monitoring and surveillance:
 - Require water companies to publicly report levels of antimicrobials, resistant micro-organisms and resistance genes in treatment plant effluent.

- Test for pathogenic and resistant microbes beyond FIOs when assessing bathing water quality.
- Require water companies to invest in modernised wastewater treatment practices such as tertiary filtration, and to develop new technologies.
- Run campaigns to improve stakeholder understanding of the threat of AMR in wastewater and best practice, such as the safe disposal of antibiotics.