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# Public Health Impact of Exposure to Antibiotic Resistance in Recreational Waters (PIER)

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## Identifying pressures

Antimicrobial resistance (AMR) is recognised globally as one of the greatest challenges to human and animal health. It has major implications for our agriculture and food production systems, environment and economy. In 2021, Ireland's second National Action Plan on AMR strengthened Ireland's commitment to tackling the challenge of AMR using the One Health approach, which recognises the link between human, animal and environmental health.

There are socio-economic, health and wellbeing benefits associated with access to clean water and blue spaces. Findings from the Public Health Impact of Exposure to Antibiotic Resistance in Recreational Waters (PIER) project help to bridge knowledge gaps on the public health implications of environmental exposure to antimicrobial-resistant organisms and how this impacts on use of blue/green spaces, wellbeing and quality of life.

## Informing policy

The second National Action Plan acknowledges that there remains a growing need to enhance our understanding of the environmental dimension of AMR. This is necessary for the development and implementation of public health-related risk assessment and risk management strategies. The PIER project provides key evidence and recommendations to support the second National Action Plan and informs several different national and international policies[1].

## Developing solutions

The PIER project adopted a One Health approach and brought together experts in microbiology, public health, epidemiology and social marketing. The PIER project has: (1) generated data on the relative risk of colonisation with antimicrobial-resistant bacteria following exposure to recreational waters, (2) revealed the persistence of carriage of antimicrobial-resistant bacteria by healthy individuals and (3) created a recreational water environment dynamic stakeholder map to enable analysis of the most feasible and impactful options to maximise use of our blue spaces.

1 1 Water Framework Directive (2000/60/EC); Bathing Water Directive (2006/7/EC); Groundwater Directive (2006/118/EC); Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC); Environmental Impact Assessment Directive (85/337/EEC); Sewage Sludge Directive (86/278/EEC); Urban Waste-water Treatment Directive (91/271/EEC); Habitats Directive (92/43/EEC); Integrated Pollution Prevention Control Directive (96/61/EC); Floods Directive (2007/56/EC); Marine Strategy Framework Directive (2008/56/EC); EC (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003); EC (Drinking Water) Regulations 2014 (S.I. 122 of 2014); EC Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009); EC Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010); EC (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010); and EC (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011).

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