EBNet Environmental Biotechnology

Biotechnology and Biological Sciences Research Council

Engineering and Physical Sciences Research Council

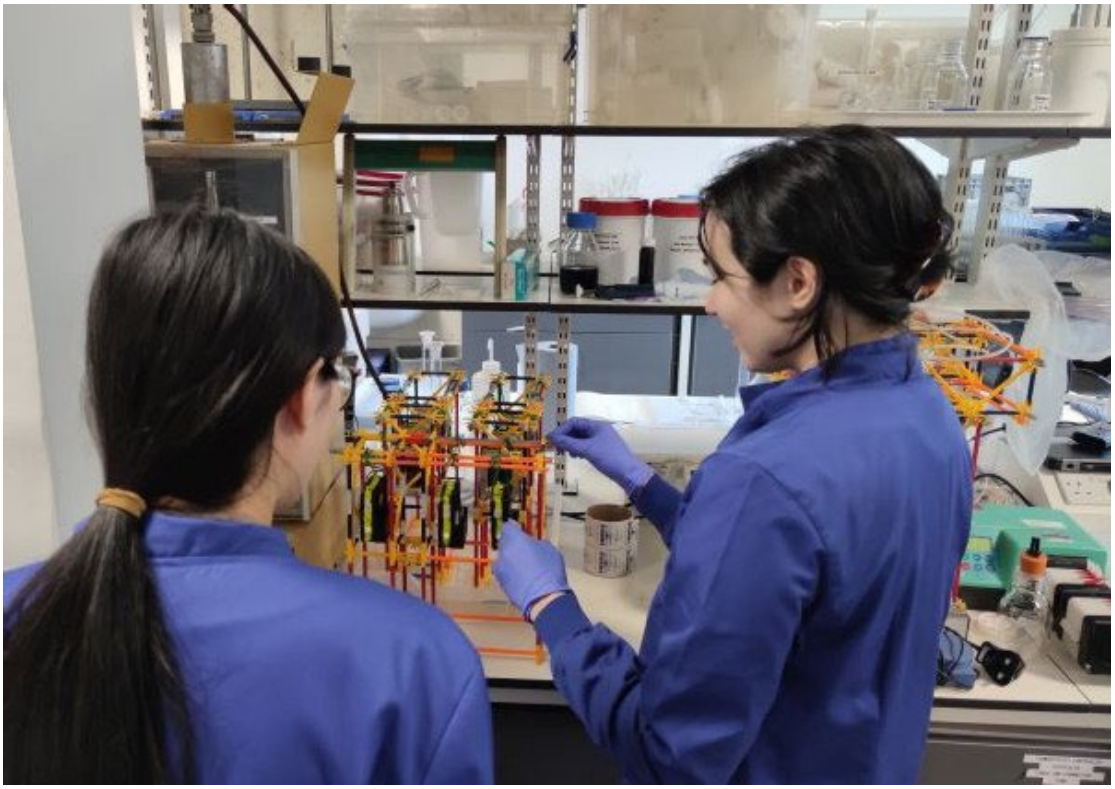


Photo of microbial fuel cell assembly courtesy of Yexin Feng

EBNet Newsletter - December 2025

New

Stay connected to keep current with the latest in Environmental Biotechnology. Help us by keeping your contact details and preferences up-to-date - see links at the end of this Newsletter to update details or unsubscribe.

CO2 Biomethanisation - Report and Presentation

The Full Report from a study of gaps and opportunities for scale-up of CO2 biomethanisation, funded by the Carbon Recycling Network and EBNet, is now available with an Executive Summary. Work on *'Modeling the decarbonisation of carbon-intensive industries through the*

integration of CO2 biomethanation: assessment of carbon savings and production costs' was carried out by members of EBNet's AD WG, led by Dr Mark Walker of the University of Hull. The report is accompanied by a detailed *presentation* on methods and results, and a poster-format summary on *CO2 Biomethanation as an enabling process for carbon recycling and utilisation – critical review of gaps and opportunities for future scale-up in the UK.*

Anaerobic Fermentation - Workshop Findings

A summary of key workshop findings on the *Role of Anaerobic Fermentation in the Circular Bioeconomy* is now available on the Resources page. The event was organised by EBNet's Anaerobic Fermentation WG, and jointly funded by EBNet and our sister-NIBB BBNet. The summary describes three key application areas based on the source of organic residues and wastes, including wastewater biosolids, the organic fraction of municipal solid wastes, and agro-industrial residues. A more detailed report will be available in 2026, and outputs will be formalised in a position document on this important topic.

Biochar WG at Teeside and EBBC

A strong showing from the Biochar WG in a symposium at Teeside University to mark the end of the AMIGO-Biochar project, with talks by WG Lead Dr Meredith Barr, and EBNet Co-Is Prof Frederic Coulon and Prof Tony Gutierrez. Meanwhile Dr Szabolcs Pap attended the European Biosolids and Bioresources Conference & Exhibition to present some of his work on phosphorus recovery using wastewater biosolids biochar. While this topic is not fully in BBSRC's remit there are clear synergies with microbially-mediated systems: for more on this, see the WG's joint workshop report.

Next and last BES webinars - and a Connect Meeting?

A version of the latest BES webinar, on *Electroactivity of microbial communities in microbial fuel cells for bioremediation*, is now available on YouTube. The speaker was Prof Claudio Avignone Rossa of the University of Surrey. The next webinar is a joint session with PhycoClub, at 10:30 on Fri 12 Dec 2025. Dr Marin Sawa of Newcastle University will speak on *Rethinking biophotovoltaics with a new concept of efficiency*. For details see *here*, or scan the QR code on the WG webpage. Meanwhile WG Lead Dr Sharon Velasquez Orta is thinking of running an informal online session in the New Year for established investigators, ECRs and industry to connect and share recent work and activities. Watch the website for more news!

Water Biofilm updates

New papers from the group led by Prof Cindy Smith at the University of Glasgow combine modelling, ecological theory and experimental work to advance our knowledge of pathogens in drinking water biofilms. While EBNet did not fund this work, we are delighted to help our members disseminate it. The Glasgow group is also working on biofilms for pollutant capture in the EBIC Hub. And don't miss a new call for papers on biofilm technologies. in a Special Issue of the journal Water to be guest edited by Dr Asma Ahmed of the University of Nottingham.

Green Stories Audiobook

December's recommendations from the audiobook and ebook are highlighted *here*. Two authors cover microbial wastewater treatment, bioremediation and fermentation. Tell us what you think!

'I am an Environmental Biotechnologist...'

We invited our Early Career Researchers to write a sentence on the theme "I am an Environmental Biotechnologist...". Some examples of their responses are shown here and in previous Newsletters. (NB EBNet has been running for 6 years - so some are no longer ECRs, but senior academics and industrialists!).

Spotlight On...

Do you have news to share with other members? Email us details if you want a shout-out in next month's newsletter. We can also post News items on the website.

GEO-7 highlights Circular Bioconomy solutions

UNEP's 7th Global Environment Outlook (GEO-7), launched on 9 Dec 2025, highlights the key opportunities offered by circular economy and bio-based solutions to align economic and environmental goals and effectively address global environmental crises. GEO-7 has moved on from diagnosis, and is focused on solutions for the connected issues of climate change, pollution and waste, biodiversity loss and land degradation, while unlocking social benefits and economic wealth. Dr Sigrid Kusch-Brandt, EBNet member and co-Author of the report, worked on these key themes across the report, including Chapter 15 on pathways towards circularity. For details of the report, see Publications below.

Panorama on PFAS

An episode of the BBC's Panorama programme on 1 Dec 2025, with the title *The truth about Forever Chemicals* has raised some critical comment from senior academics, who believe it oversimplifies the problem in ways that could cause unjustified alarm and anxiety. These include EBNet's Prof Frederic Coulon, a member of the PFAS WG, and others on Twitter/X and elsewhere. For an excellent brief introduction to some of the key issues, see Dr Hans Slender's

keynote presentation, kindly made available by AquaConSoil 2025.

Biotechnology companies - Bleeding to Death?

Numerous recent surveys, reports and editorials have noted the challenges facing new (bio)technologies for a more sustainable economy. One of the broadest and most excoriating comes from the UK's House of Lords Science & Technology Committee, in a document entitled *Bleeding to death: the science and technology growth emergency*. The report notes that "Laissez-faire attitudes towards science and technology companies are not an option in the rapidly changing geopolitical and technological landscape. Resolving this complex and long-standing problem will require urgent, sustained action across the whole of Government…". Great news that these issues are being recognised at the highest levels: EBNet hopes this can now be turned into real momentum.

Wastewater-Based Epidemiology Assessment and surveillance

Advances in wastewater-based epidemiology have slipped from the headlines slightly, after catching attention in the Covid-19 pandemic. That welcome decline from notoriety gives time to reflect on the scientific advances achieved, and the remaining research and ethical issues: an opportunity welcomed by EBNet's ESWS WG led by Prof Zhugen Yang of Cranfield University, who is actively involved in development of low-cost sensors for the UK's national programme. For a potential platform for discussion, see the special issue on *Wastewater-Based Epidemiology Assessment and Surveillance* with submissions closing on 15 Jan 2026.

NBIC initiatives

The National Biofilms Innovation Centre (NBIC) has launched a new blog series called *Beyond the Biofilm*, which aims to spotlight researchers working on innovative areas and to promote a more inclusive and collaborative research community. This complements the existing NBIC *Insight Blog* which provides updates and insights on biofilm research across the pitch. And don't miss the winners of this year's Biofilm Create competition, with images as striking as ever.

More people are turning to EBNet for speedy access to events, reports, jobs, PhD/Postdoc positions etc.

Join us on LinkedIn or *X* (formerly Twitter)

Forthcoming Events

Find selected upcoming events below.

Find more at: ***KTN events***

Online events

NEW Horizon Europe - ERA 2026 Brokerage Event - 17 Dec 2025

In person events

NEW IBioIC26: Biosolutions for Tomorrow's World - 10 Mar 2026, Glasgow

NEW European Wastewater Management - 16-17 June 2026. **Abstracts 30 Jan 2026**

NEW IWA Non-sewered Sanitation Systems - 12 July 2026. **Abstracts 15 Dec 2025**

Towards a Biobased Chemical Future - 26 Feb 2026, RSC London

IWA 11th Sewer Processes & Networks - 19-21 May 2026, Trondheim, Norway.

EUBCE 2026 - 19-22 May 2026, The Hague, Netherlands.

Amazing Science: Unlocking Methane Removal - 24-27 May 2026 Bologna, Italy.

IWA 14th Micropoll & EcoHazard - 31 May to 4 June 2026, Toronto, Canada. **Abstracts 15 Dec 2025**

IWA 19th World Conference on AD - 9-13 June 2026, Valencia, Spain.

Water in Industry 2026 - 27 June to 3 July 2026, Delft, Netherlands. **Abstracts 15 Dec 2025**

WasteEng 2026 - 7-10 July 2026, A Coruña, Spain.

Photorefineries 2026 - 2-4 Sept 2026, Novi Sad, Serbia. **Abstracts deadline 20 April 2026**

Funding

Selected funding opportunities for academia and industry are highlighted below.

*Find more at: **UKRI funding***

New JSPS Short Tern Pre/Postdoc Fellowships - 19 Jan 2026

New Quintin Hogg Trust PhD Scholarships - 6 Feb 2026

New BBSRC Transformative Research Technologies (25TRT) - 11 Feb 2026

New Leverhulme Trust Research Grants - Outline Stage - 27 Feb 2026

Royal Commission of 1851 Research Fellowships - 13 Jan 2026

BBSRC New Investigator Awards - 14 Jan 2026

BBSRC Standard Research Grants - 14 Jan 2026

BBSRC ALERT 2025 Mid-range equipment - 20 Jan 2026

Pushing the Frontiers of Environmental Research - 21 Jan 2026

Leverhulme Trust Emeritus Fellowships - 29 Jan 2026

NERC Large grant outlines - 26 Feb 2026

Faraday Discovery Fellowships - Accelerated International - 25 Feb 2026

Leverhulme Trust Visiting Professorships - 1 May 2026

EPSRC Programme grant full proposal - open

EPSRC Network Grant - open

Daphne Jackson Fellowship - open

BBSRC Brazil pump-priming - open

Travel and related awards

EPSRC Overseas Travel Grant - open

NBIC Flexible Talent Mobility Account - until 2027

Jobs, Training, Awards & PhDs

We still have funding available for Share-with-a-peer (SWAP) exchanges - for details see EBNet website

Jobs (see also FindAPostDoc & Jobs.ac.uk)

NEW Research & Knowledge Exchange Theme Leader: Pollution - 17 Dec 2025, Environmental Research Institute, UHI

NEW Research Fellow in CO2 Biomethanisation - 2 Jan 2026, University of Southampton

NEW Lecturer in Microbial Ecology - 4 Jan 2026, University of Plymouth

NEW Lecturer in Environmental Monitoring and Detection Techniqes - 11 Jan 2026, Open University

PhDs (see also FindaPhD and similar sites)

NEW Developing microbial UASB reactors for biogas fuel and chemical production from wastewater - 7 Jan 2026, University of York

Resource at source: Bio-based platforms for transitioning to a Net Zero Chemical Industry - 18 Dec, University of Manchester

Optimising sustainable bioplastic supply chains: modelling nanocellulose production in the UK - 19 Dec 2025, University of Manchester

Biotechnology in the Home: Reducing pollution through Bio-based Wastewater Management - 7 Jan 2026, University of Essex

Delivering plastic degrading genes into contaminated soils - 7 Jan 2026, University of East Anglia

CDT in Resilient Chemistry - 4 themes - start 2026, Universities for Nottingham

PFAS sources, Fate & Transport focusing on River Thames - start Oct 2026, University of Portsmouth

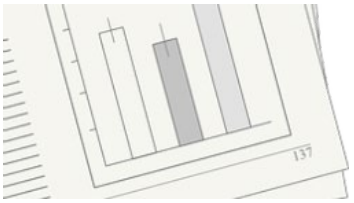
Scale-up of low-carbon Hydrogen from photoelectrocatalysis/cavitation - start Oct 2026, University of Bath

Training

IBioIC 3-Day Advanced Downstream Bioprocessing - 2-4 Dec 2025, Edinburgh

Biofilms Alliance: Fundamentals of Metrology - 8 Dec 2025, online

Publications



Have you seen something, or published anything recently, that you would like us to highlight?

Global Environment Outlook 7: A future we choose - Why investing in Earth now can lead to a trillion dollar benefit for all. United Nations Environment Programme (2025).

Microbial ecology in Engineered systems: Predicting the Dynamics Behaviour of Drinking Water Biofilms. Bhandari, D.S., Quinn, D., You, S., Smith, C., Sloan, W.T. and Boxall, J., 2025. CCWI 2025 – 21st Computing & Control for the Water Industry Conference, She eld, UK.

MAGqual: a stand-alone pipeline to assess the quality of metagenome-assembled genomes. Cansdale, A. and Chong, J.P., 2024. *Microbiome*. 12(1), p.226.

Fungi from Chernobyl: mycobiota of the inner regions of the containment structures of the damaged nuclear reactor. Zhdanova, N.N., Zakharchenko, V.A., Vember, V.V. and Nakonechnaya, L.T., 2000. *Mycological Research*, *104*(12), pp.1421-1426.

Still here?

Tropic or Trophic?

Can microbes actively make use of ionising radiation? This topic is in the news again, probably because of reports that the shield around the damaged Chernobyl Reactor no. 4 can no longer provide effective containment after a recent attack.
Scientific work indicating that some fungi are radiotropic, growing towards radiation sources, goes back to the late 1990s in the Chernobyl exclusion zone (see e.g. Zhdanova et al. 2000, above).

Other studies have confirmed this, and suggested possible links between melanin and metabolism in such organisms; but the jury is still out on whether certain species are actually radiotrophic, and can gain energy directly from radiation. There is more on this fascinating story on the BBC News and various science Blogs.

If demonstrated, it will be another example of the awesome capabilities of the microbial world. Meanwhile watch the science press for robust and conclusive evidence...

Where else to look?

There is a growing range of UK Networks and Hubs related to Environmental Biotechnology. Like EBNet, our sister-NIBBs BBNet and HVB run to end January 2026.

The Better Water for All Network+ has now launched. NBIC continues to support research into biofilms. The six Engineering Biology Mission Hubs include the Environmental Biotechnology Innovation Centre, which builds on and expands some of EBNet's themes. Two other Mission Hubs, Elemental and P3EB, also have an environmental focus. Sign up for EBIC's Newsletter ***here***.
