

AquaticPollutants Objectives

1. Establish integrated and cross-sectoral approaches for risk management
2. Analyse the spread of CECs and pathogens related to antimicrobial resistance from different sources
3. Describe the transformation of such CECs and pathogens and their effects when entering aquatic systems and accumulating in the food chain
4. Design and evaluate strategies and technologies to reduce pollutants at the source, along their pathways and at end-of-pipe
5. Develop methodologies to encourage more effective policies and efficient regulations

About the ERA-NET Cofund

Three European Joint Programming Initiatives (JPIs) – **Water JPI**, **JPI Oceans** and **JPI AMR** – set up the ERA-Net Cofund AquaticPollutants to carry out the necessary research and innovation to better understand and to control the presence of CECs, pathogens and anti-microbial resistance (AMR) in aquatic ecosystems across Europe and beyond. The Cofund includes a call for research and innovation projects and another one for an accompanying scientific transfer project, both of which launched in 2020.

The research and innovation projects conducted under the AquaticPollutants umbrella cover three main themes:

Measuring:
environmental behaviour of aquatic pollutants and pathogens

Evaluating:
risk assessment and management along entire ecosystem

Taking actions:
strategies to reduce aquatic pollutants and pathogens

ERA-NET Cofund AquaticPollutants

- 32 ministries, authorities and funding organisations
- 17 EU member states and 9 countries from Europe, South America, Africa and Asia
- Coordinator – PTKA (Germany)
aquaticpollutants@ptka.kit.edu
- Funded research projects
 - Duration: 36 months
 - 20 million € in funding
 - 18 research projects
- Transfer project call
 - Duration: 48 months
 - 0.85 million €

AquaticPollutantsTransNet

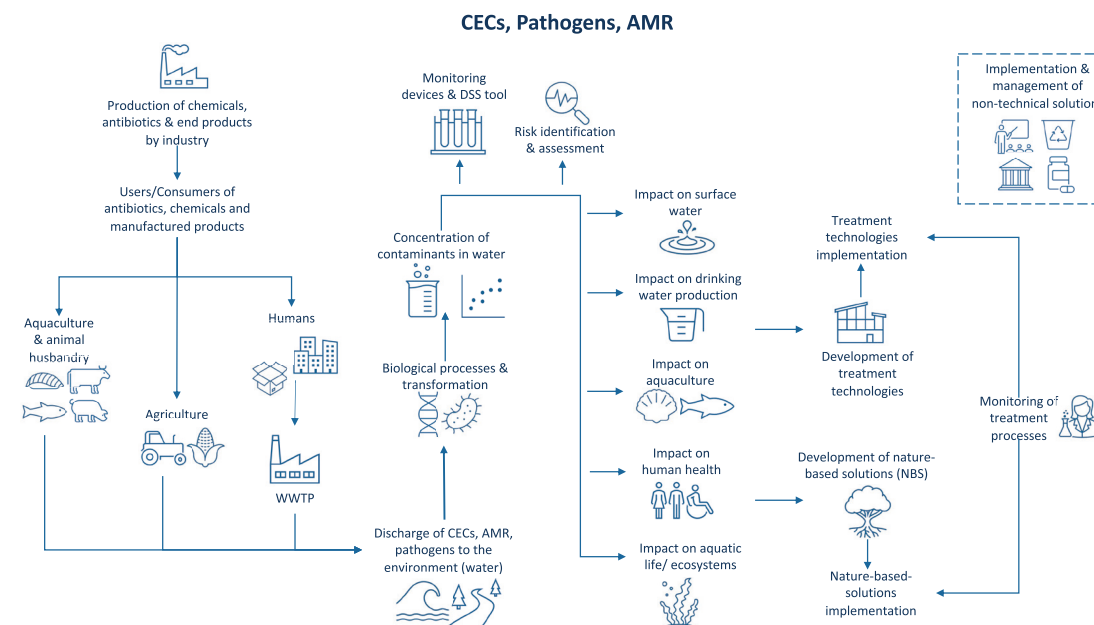
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AquaticPollutants addressed „ecosystem“



For a healthy aquatic environment

AquaticPollutants



ERA-NET Cofund AquaticPollutants
The AquaticPollutantsTransNet partners have received funding from the German Federal Ministry of Education and Research (BMBF), the French National Research Agency (ANR) and the Swedish Research Council (SRC) within the 2020 Transfer Project Call, implemented under the ERA-NET Cofund AquaticPollutants of the Joint Programming Initiatives (JPIs) on Water, Oceans and Antimicrobial Resistance (AMR).



18 AquaticPollutants Cofunded Research Projects

Scientific Transfer Project

Theme 1: Measuring

Environmental behaviour of CECs, pathogens and antimicrobial resistant bacteria in aquatic ecosystems, including:

1. Assessing the significance of different potential sources, reservoirs and pathways of CECs, pathogens and antimicrobial resistant bacteria (ARB)
2. Understanding and predicting their environmental and cumulative behaviours, including the development of tools and digital solutions

SPARE-SEA – Environmental spread and persistence of antibiotic resistances in aquatic systems exposed to oyster aquaculture

MAPMAR – Marine plasmids driving the spread of antibiotic resistances

ARENA – Antibiotic resistance and pathogenic signature in marine and freshwater aquaculture systems

PAIRWISE – Dispersal of antibiotic resistance and antibiotics in water ecosystems and influence on livestock and aquatic wildlife

SARA – Surveillance of emerging pathogens and antibiotic resistances in aquatic ecosystems

PARRTEA – Probing antibiotic residues and resistance transfer in aquatic environments

FOREWARN – Development a smart forewarning system to assess the occurrence, fate and behaviour of contaminants of emerging concern and pathogens, in waters

Theme 2: Evaluating

Risk assessment and management of CECs, pathogens and ARB from aquatic ecosystems (inland and marine) and their impact on human health and the environment, including:

1. Characterising exposure routes and effects on aquatic ecosystems and on human health
2. Developing integrated risk assessment and risk management procedures
3. Identifying parameters and strategies for monitoring potential ARB

AIHABs – Artificial intelligence-powered forecast for harmful algal blooms

CONTACT – Consequences of antimicrobials and antiparasitics administration in fish farming for aquatic ecosystems

PHARMASEA – Presence, behavior and risk assessment of pharmaceuticals in marine ecosystems

BIOCIDE – Antibacterial biocides in the water cycle – an integrated approach to assess and manage risks for antibiotic resistance development

Theme 3: Taking Actions

Strategies to reduce CECs, pathogens and ARB in aquatic ecosystems (inland, coastal and marine), including:

1. Implementing strategies to reduce CECs, pathogens and ARB at the source
2. Developing methods to prevent their spread

GreenWaterTech – Green ultrafiltration water cleaning technologies

NanoTheC-Aba – CECs and AMR bacteria pre-concentration by ultra-nano filtration and abatement by thermocatalytic nanopowders implementing circular economy solution

AMROCE – Nanoenabled strategies to reduce the presence of contaminants of emergent concern in aquatic environments

SERPIC – Sustainable electrochemical reduction of contaminants of emerging concern and pathogens in WWTP effluent for Irrigation of crops

PRESAGE – Potential of decentralized wastewater treatment for preventing the spread of antibiotic resistance, organic micro-pollutants, pathogens and viruses

NATURE – Nature-based solutions to reduce antibiotics, pathogens and antimicrobial resistance in aquatic ecosystems

REWA – Reduction and assessment of antimicrobial resistance and emerging pollutants in natural-based water treatment systems

AquaticPollutantsTransNet strengthens the outreach of the AquaticPollutants initiative by:

1. Identifying key stakeholders and their knowledge gaps through stakeholder interviews, workshops and co-creation activities
2. Identification and definition of knowledge gaps
3. Fostering synergies among the 18 research projects and supporting their stakeholder engagement
4. Improving knowledge transfer from research projects to stakeholders by exploring and implementing innovative communication approaches

The project consortium is comprised of 5 partners:

- DECHEMA – Society for Chemical Engineering and Biotechnology (project coordinator, Germany)
- ACTeon Environment (France)
- BRGM – French Geological Survey (France)
- IVL – Swedish Environmental Research Institute (Sweden)
- ISOE – Institute for Social-Ecological Research (Germany)

