

Proposals for NORMAN Joint Programme of Activities 2022

Title	Ecosystem level effects of chemicals of emerging concern on aquatic ecosystems
Type of activity	Expert group (part of WP2)
Leader	Paul J. Van den Brink (Wageningen Environmental Research) and Andreu Rico (IMDEA)
Topic / activities	<p>Background / Justification for the proposed activity:</p> <p>The working groups of the NORMAN network merely focusses on the prioritisation of emerging chemicals, assessing their exposure and assessing their effects using bioassays, biomarkers and effect-directed analysis tools. Recently a working group on soil and the terrestrial environment has been added. We felt that effects on the higher levels of biological organisation of aquatic ecosystems are lacking. That why we proposed in 2021 that the expert group embedded in WG 2 which both includes the field assessment of ecosystems structure and functioning (aquatic monitoring) as well as semi-field studies performed with emerging chemicals using microcosms and mesocosms. In 2021 we organised an online workshop to discuss the need for such an expert group, which was validated by the 30 participants. The workshop concluded that an in person workshop would be needed which was scheduled for November 2021. Due to the Covid situation we agreed to move the workshop to spring 2022.</p> <p>Description of the proposed activity and expected outcomes for 2021 (and beyond):</p> <p>Ultimately we would like to set up a data base in which the results of biological monitoring programmes can be recorded together with the measured chemical stressors and other parameters like physico-chemical parameters and landscape characteristics.</p> <p>On the short term we would like to make an existing data base, the WU-COSM data base, available for the scientific community. Brock et al. (2000a; 2000b) and Van Wijngaarden et al. (2005) developed a data base in which the effects of chemicals as observed in microcosm and mesocosm experiments were categorised into no effects, slight effects and clear effects using different structural and functional endpoints (e.g. zooplankton, phytoplankton, physico-chemical parameters, macro-invertebrates, fish). This data base has been updated till 2009 and is the data base behind the PERPEST model which is able to predict the community and ecosystem-level effects of pesticides (Van den Brink et al., 2002). We would like to update the data base, broaden it as it currently only contains pesticides and discuss whether it has the right structure for its use within the NORMAN network.</p> <p>For 2022 we would propose to organise a small workshop (10-15 participants) to discuss the activities of the WG and the further development of the WU-COSM data base.</p> <p>Added value / Link with other NORMAN activities and / or other projects</p> <p>The WU-COSM data base can be used to validate bioassays, biomarkers and effect directed analysis tools as the ecological consequences of a (mixture of) chemicals can be assessed using the data base. I will also complement the activities of WG1 as they already host an ecotoxicity data base on single species toxicity tests.</p> <p>On the long-term the WG will also discuss improvements and protocols for the field monitoring of community and ecosystem level effects of chemicals in the field, which will add to the protocols and guidance developed by other working groups on e.g. passive sampling, non-target screening and the use of bioassays, biomarkers and effect-directed analysis tools.</p> <p>Literature</p> <p>Brock, T.C.M., J. Lahr and P.J. Van den Brink (2000a). Ecological risks of pesticides in freshwater ecosystems Part 1: herbicides. Alterra-Report 088, Wageningen, The Netherlands</p> <p>Brock, T.C.M., R.P.A. van Wijngaarden and G.J. van Geest (2000b). Ecological risks of pesticides in freshwater ecosystems Part 2: insecticides. Alterra-Report 089, Wageningen, The Netherlands</p> <p>Van den Brink, P.J., J. Roelsma, E.H. Van Nes, M. Scheffer and T.C.M. Brock (2002). PERPEST, a Case-Based Reasoning model to predict ecological risks of pesticides. Environ. Toxicol. Chem. 21: 2500-2506.</p> <p>Van Wijngaarden, R.P.A., T.C.M. Brock and P.J. Van den Brink. (2005). Threshold levels for effects of insecticides in freshwater ecosystems, a review. Ecotoxicology 14: 353-378.</p>
Participants	Andreu Rico (IMDEA)
Proposed in-kind contribution	€10.000 (5 days Paul van den Brink and 5 days Andreu Rico)



Contribution needed from NORMAN Association¹	€3.000 Rent workshop venue @ IMDEA: €500 Meals (2*lunch and 1*dinner): €1.000 Support for 3 workshop participants: € 1.500
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¹ Please, provide here a transparent justification of the requested resources and of the in-kind contribution, thereby distinguishing between the costs associated with “person-months” for the organisation, the “travelling costs” for invited speakers and the costs for the logistics (e.g. meals, room rental etc.)