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## Predicting recovery of acidified freshwaters in Europe and Canada: an introduction

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Abstract.

Abstract: The RECOVER: 2010 project was designed to assess the current and future anthropogenic pressures on sensitive European freshwater ecosystems. This pan-European assessment utilised a standardised predictive modelling approach to evaluate the degree of compliance with respect to the restoration of acidified waters by 2016, as specified under the EU Water Framework Directive (WFD), and evaluated the environmental benefits of proposed UN-ECE protocols on emissions control. Between 1970 and 2000, observations and model simulations show a significant decline in acidic surface water in all regions of Europe. This demonstrated the success of policies aimed at reducing emission of acidifying compounds. The nature and extent of future regional recovery from acidification is, however, dependent upon the historical pattern of deposition, regional ecosystem characteristics and the role of confounding factors, which may delay the onset of recovery or the magnitude of response. Model predictions to 2010 and beyond emphasise the continued benefit of currently proposed reductions, as reflected by the degree of recovery of freshwater ecosystems. A key component was to link such hydrochemical recovery with ecological response, and the project aimed to evaluate this against current WFD criteria of "good status" and "reference conditions". The RECOVER: 2010 project research has also played a major role in defining the dynamic modelling outputs which will be required to support the review of the Gothenburg Protocol within the work of the UN-ECE CLRTAP Working Group on Effects (WGE), and model outputs have been made available to a range of national agencies throughout Europe.

Keyword: recovery, acidification, modelling, policy, good status, reference conditions

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