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THE EUROPEAN WATER FRAMEWORK DIRECTIVE PHYSICAL TYPOLOGY AND RIVPACS-TYPE MODELS AS ALTERNATIVE METHODS OF ESTABLISHING REFERENCE CONDITIONS FOR BENTHIC MACROINVERTEBRATES

J. Davy-Bowker[1], R.T. Clarke[1], R.K. Johnson[2], J. Kokes[3], J.F. Murphy[1], S. Zahrádková[3]

[1] *Centre for Ecology & Hydrology, Winfrith Technology Centre, Dorchester, Dorset, DT2 8ZD, United Kingdom.*
[2] *Department of Environmental Assessment, Swedish University of Agricultural Sciences, P.O. Box 7050, SE-750 07, Uppsala, Sweden.*
[3] *T.G.M. Water Research Institute, Drevarska 12, 657 57 Brno, Czech Republic.*
[4] *Department of Zoology and Ecology, Faculty of Science, Masaryk University Brno, Kotlářská 2, 611 37 Brno, Czech Republic.*

The EU Water Framework Directive requires European Member States to establish 'type-specific biological reference conditions' for each water body type. Types can be defined by using either a fixed typology (System A), defined by ecoregions and categories of altitude, catchment area and geology, or by means of an alternative characterisation (System B) that can use a variety of physical and chemical factors. Member States can choose to use either System A or System B. However if choosing System B, Member States must achieve at least the same degree of differentiation as would be achieved using system A. Practically, this means that Member States wishing to use a System B typology, must show that that average biotic community variance within their System B stream types is lower than average biotic community variance within System A stream types. In this analysis we compare biotic community variance of the WFD System A typology with biotic community variance in RIVPACS-type (System B) models in Great Britain– using RIVPACS, Sweden – using SWEPAC$_{SRI}$ and the Czech Republic – using PERLA. We also explore the relative explanatory power of individual physical variables used in both the System A typology and three RIVPACS-type models.