



Explicit space and time definitions of phosphorus transfers in agricultural catchments

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To evaluate catchment scale soil nutrient management benefits on water quality, it is contended that the minimum information required is a spatially explicit definition of sources to focus management and a temporally explicit definition of nutrient delivery in rivers to audit catchment transfers. An understanding of the major hydrological controls on nutrient transfers from land to water is also necessary to separate the relative importance of source and transport mechanisms. To evaluate certain measures to curtail the agricultural contribution to nutrient transfer, we show, for example, how agricultural soils sampled on a 2ha basis across landscape orders of 1,000hectares compare with high resolution phosphorus monitoring on a sub-hourly basis in Irish river catchments. These data highlight the magnitude of inter-catchment source and transport risks (agricultural intensity versus hydrological susceptibility), distinguish the apparent seasonal importance of point and diffuse nutrient signals (which may change in a changing climate) and question current eutrophication metrics (and expectations of change trajectories) allied to agricultural landscapes.