



## **Dissolved Organic Carbon in Irish Streams**

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In the midst of increasing debate on global climate change, a comprehensive and accurate understanding of the global carbon cycle is necessary. Dissolved organic carbon (DOC) is one of the least understood components of the global carbon cycle. It is the carbon contained in solution, measured in rivers, ground water, lakes, oceans, and soil water. This study focuses on quantifying the concentration and flux of DOC for multiple Irish catchments.

Stream DOC concentrations often reflect the proportion of the catchment covered by wetland soils versus well drained soils (Dalva and Moore 1991). Peaty soils in particular, with their abundance of stored organic carbon, are positively correlated with riverine DOC fluxes (Hope et al. 1997). There is evidence that the fluvial flux of carbon is increasing on a decadal scale (Worrall, Guilbert and Besien 2007). Recent work has shown an increase in DOC levels in the UK and elsewhere (Raymond and Neung-Hwan Oh 2007; Worrall, Guilbert and Besien 2007; Evans, Monteith and Cooper 2005; Evans et al. 2006; Freeman et al 2004; Worrall, Burt and Adamson 2003).

Our data represents a first attempt at quantifying Irish riverine DOC. This study aims to develop a baseline understanding of the concentration and factors affecting the flux of riverine DOC in Ireland. The data, covering 55 catchments nationwide, encompasses the range of land uses and soil types common in Ireland. We used estimated stream discharge, catchment area, elevation, slope, soil type, soil depth, and land use to determine what influences both concentration and flux of DOC in Ireland catchments.