



The prognosis for carbon storage in northern peatlands – evidence from peatlands in the UK

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It is commonly recognised that one of the most important sources of DOC are organic-rich soils and particularly peat soils. Increasing concentrations of DOC from peat-covered catchments have been widely reported across the globe for a range of sub-Arctic settings. However, it is difficult to understand the consequence of these trends for carbon storage within peats – do such increases indicate that carbon storage in these ecosystems is decreasing? This study brings together both field and modelling studies to understand the future of this vital carbon store:

1. A complete carbon budget of a pristine peat catchment over a 13 year period shows that on average it is a net carbon store of 60 Mg C/km²/yr, but that in some years this net sink of carbon could be close to neutral.
2. Complete carbon budgets of managed peat catchments shows that can be net sources of carbon of upto 100 Mg C/km²/yr
3. Modelling of the pristine peat catchment in to the future given most probable climate scenarios shows the catchment progressing to being a net source of carbon by mid-century.

This evidence suggests the UK peatlands are progressing from a net sink to a net source and indeed many of the marginal areas may already be net sources. However,

the managed nature of these ecosystems does provide an opportunity to mitigate the effects of climate change.