Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Soil and Environment

Carbon and nitrogen interactions in agricultural streams

Credits: 30 credits
Level: Master
Subject: Environmental Science
Start: Anytime

Background

Carbon (C) and nitrogen (N) are two important elements regulating many biological and chemical processes in aquatic ecosystems. Recent study (Figure 1) shows that their concentrations across environments are very stable. Despite this universal stability, we observe a large variation in both C and N concentrations in response to changing flow but also agricultural practices.

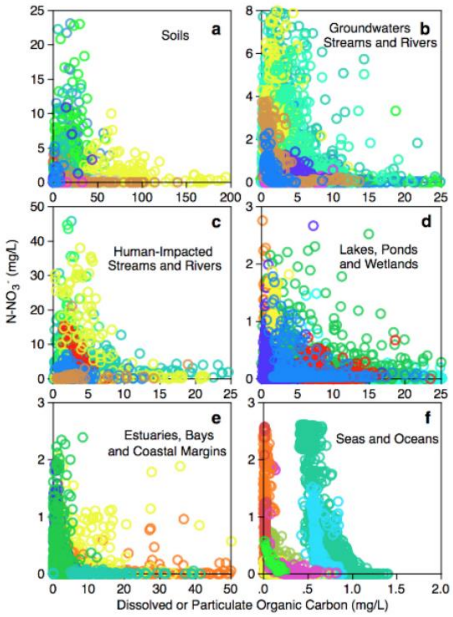

Figure 1 Elemental ratio of dissolved organic C to nitrate N (https://doi.org/10.1038/nature08985)

Objectives

To analyse 5 year high-frequency (every 15 mins) dataset of C and N concentrations and detect any patterns in relation to flow and agricultural practices in a small headwater agricultural catchment. To determine controls of C and N interactions on varying time scales, from storm events, seasons to hydrological years. To conduct a literature analysis of C-N interactions in streams draining agricultural catchments.

Performance

The work involves:

- Field and laboratory measurements,
- Statistical analysis of a large C-Q dataset,
- Literature review and report writing.

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