

Effects of NOM Source and Environmental Factors on Variability of DOC  
Composition

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The importance of source materials, soil chemistry and hydrology on the amount and composition of natural organic matter (NOM), measured as dissolved organic carbon (DOC), in aquatic systems will be presented. Each of these factors influences not only the amount of organic matter in a given system, but its reactivity as well. Organic matter derived from different source materials has distinctive chemical characteristics associated with those materials. Interactions between organic matter and the minerals and inorganic constituents in soil can result in the removal and fractionation of the organic matter altering the composition and reactivity of the DOC. Oxidative processes, such as photooxidation, can result in the decrease of DOC concentration and the selective removal of high molecular weight, more aromatic constituents in the carbon pool. The resulting DOC can be more hydrophilic, lower molecular weight and more biodegradable. Finally, the transport of organic carbon is largely dependent on hydrologic conditions, which define the flow path and control the rate of transport of DOC within the system. The nature, distribution and reactivity of organic matter in a given system is determined, to a large extent, by the strength and nature interactions between the various components of the environment. Understanding these factors ~~in a given system~~ will help in identifying effective solutions to problems posed by its presence.