



## Temperature and water level effects on greenhouse gas fluxes in soil cores from black ash (*Fraxinus nigra*) wetlands in the northern Great Lake States, USA

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Forested black ash (*Fraxinus nigra*) wetlands in the northern Great Lake States, USA are threatened by the invasive insect, emerald ash borer (*Agrilus planipennis* Fairmaire (EAB)). Emerald ash borer-induced ash dieback can alter wetland hydrology by, elevating the water table. Changes in water table levels will alter carbon and nutrient cycling and gaseous fluxes from wetlands. We incubated soil cores from black ash wetlands in northern Minnesota and Michigan with mineral and organic soils, respectively, and measured the efflux of carbon dioxide, methane, and nitrous oxide. The 50 cm soil cores were incubated in growth chambers at 10°C, 15°C, and 20°C with two water level treatments; a completely saturated control and a treatment in which water levels were incrementally decreased and then increased. Each gas species is hypothesized to respond differently to water level. Methane production is expected to be greater in the organic soil and increase with saturation. Nitrous oxide efflux will be greatest at moderate saturation, and carbon dioxide efflux will be greatest in unsaturated soils. As expected, preliminary data suggest temperature is a driving factor controlling gas efflux in both mineral and organic soils.

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