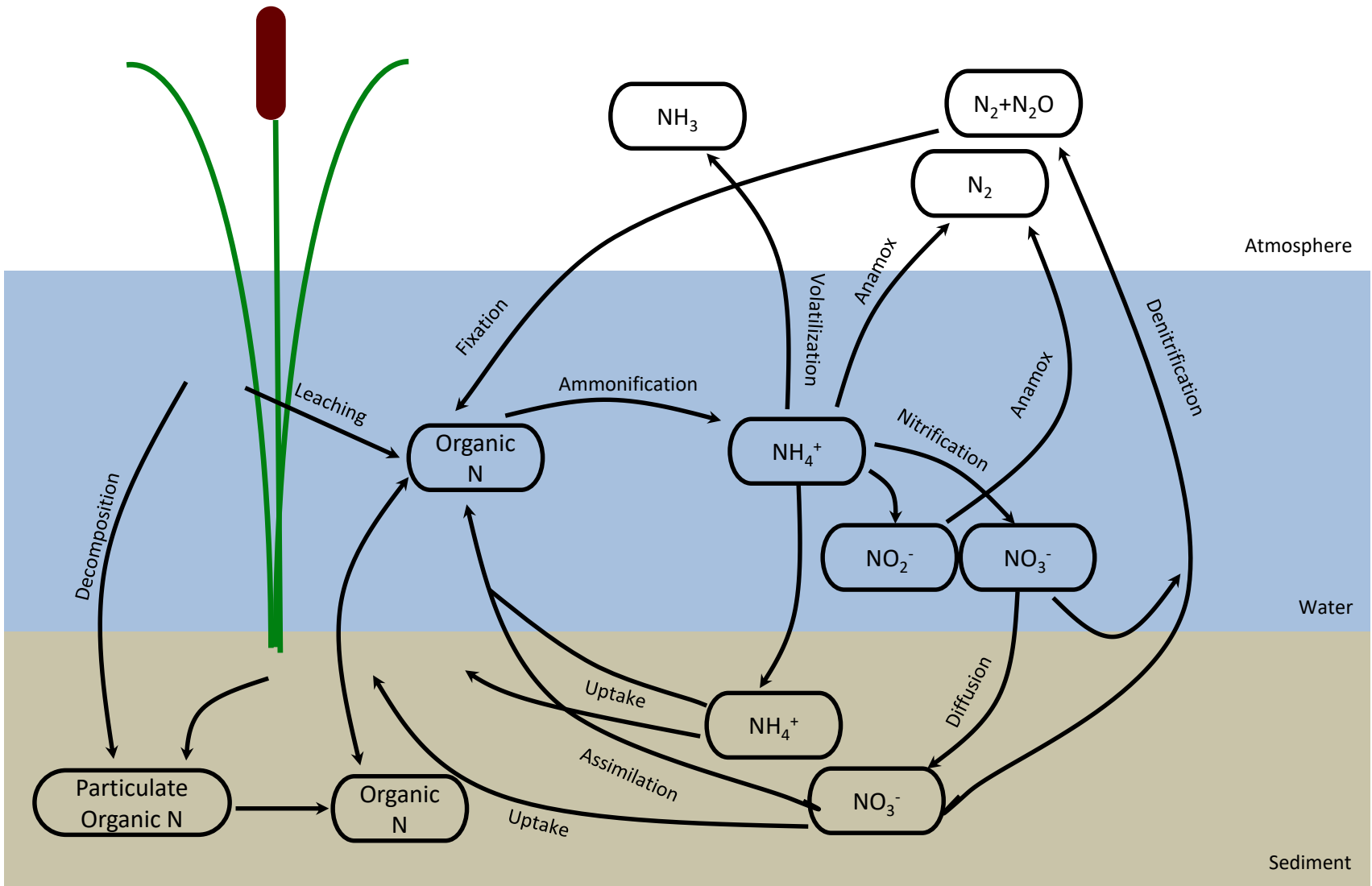


Nitrogen Dynamics & Stormwater Management

Nitrogen Forms

- Total Nitrogen
 - Total Kjeldahl Nitrogen
 - Ammonia/um (NH_3 , NH_4^+)
 - Organic Nitrogen (e.g. amino acids, urea, purines, pyrimidines, humic acid, proteins, lipids, etc.)
 - Nitrate/Nitrite (NO_x)

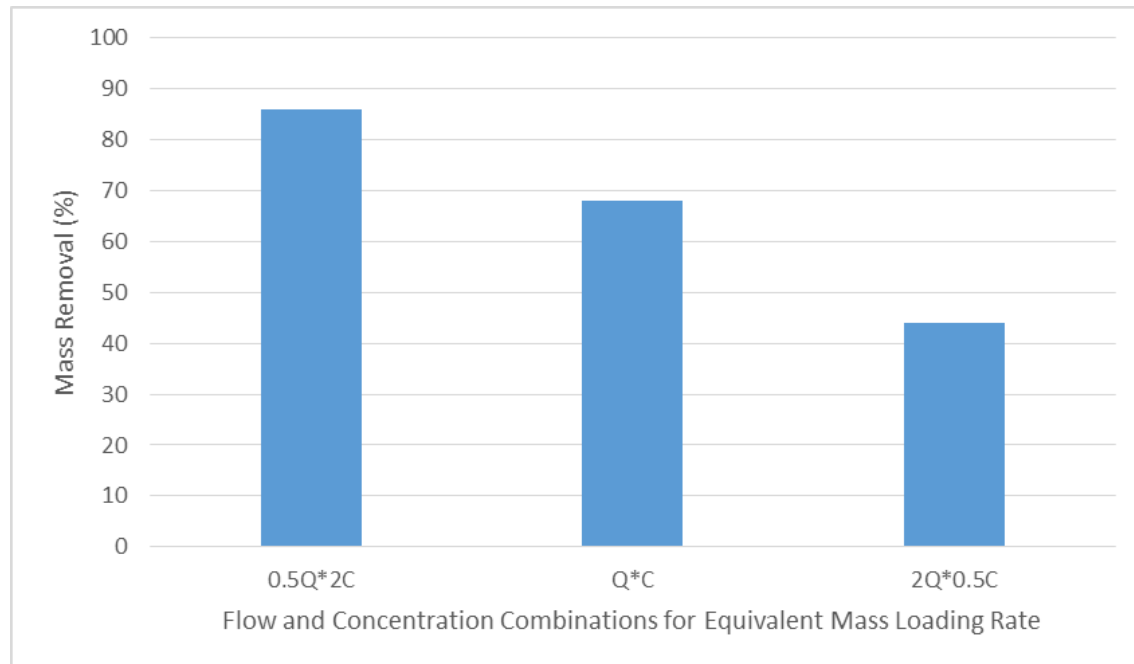


Nitrogen Concentrations

- Irreducible concentrations
- Nitrate/nitrite and ammonium can be reduced to below detection limits, ~ 0.004 mg/L and 0.01 mg/L, respectively
- Organic nitrogen includes some recalcitrant forms, minimum concentrations of $\sim 0.2-1.0$ mg/L

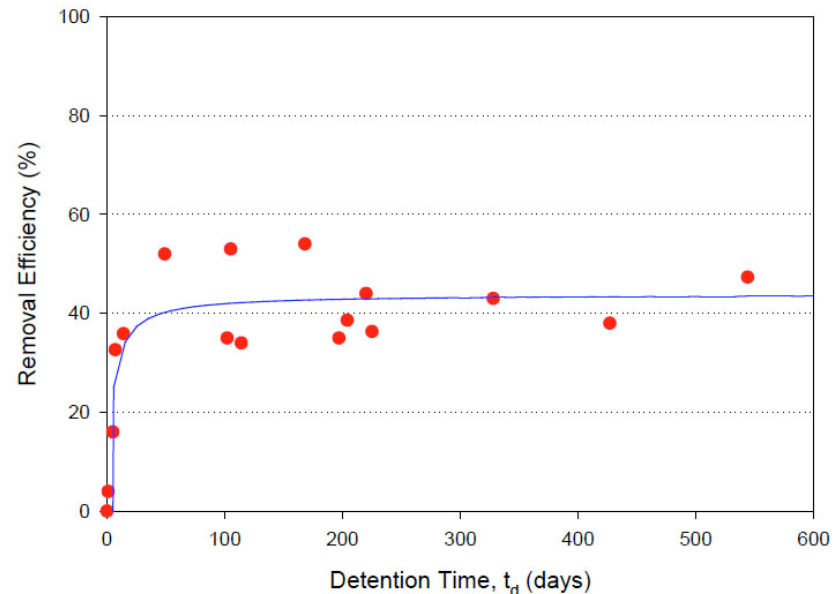
Stormwater Concerns

- Targeted pollutant reduction efficiency, 70-95%
- Pulse-loading vs steady-state
- EMCs



Efficiency

- Efficiency independent of incoming concentration
- Treatment process order
- Assumed efficiencies (e.g. 45% TN removal for biofiltration, MAPS 10%)



Groundwater Protection

- SW practice assumes that all nutrients infiltrated are gone (AC concept tried to address)
- Surface discharges have to meet other criteria
- Assuming treatment without monitoring risks BMAPs failing even after implementing projects
- Typically no monitoring

Alachua County Geology

- Eastern vs western county

