

# Chronic AgNP additions lead to higher long-term exposure

Benjamin P. Colman<sup>1</sup>, Leanne Baker<sup>2</sup>, Cole Matson<sup>2</sup>, Ryan King<sup>2</sup>, Emily S. Bernhardt<sup>1</sup>

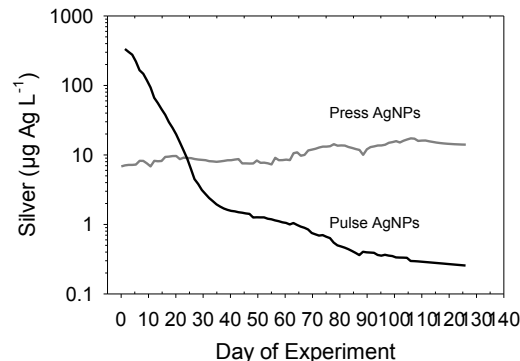
## Pulse exposure vs. more realistic Press

Pulse AgNPs:  
450mg Ag  
Single addition on  
Day 0

Press AgNPs:  
450mg Ag  
52 weekly additions



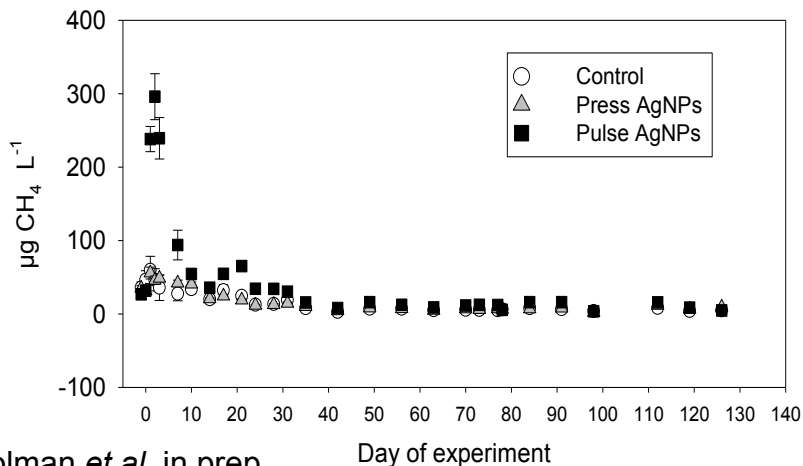
## Higher long-term exposure in Press AgNPs



Smoothed data show Press AgNPs have higher average water column concentration by Day 28 (only 8% silver added)

## Pulse AgNPs → Acute toxicity to plants

Ag toxicity to plants caused short term release of organic matter, and organic matter stimulated methane production



Colman *et al.* in prep

## Uptake similar Pulse vs. Press by day 125

Periphyton (microbe/algal biofilms) show elevated Ag in Pulse AgNPs at day 30, but snails showed similar uptake in both treatments at day 30 and 125

