

Soil and Water Science Department Seminar

Speaker: **Rose Collins**
M.Sc. Thesis Degree Candidate

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Title: **The Effect of Short Term Inundation
on Potential Nitrogen Flux in a Coastal
Ecosystem**

Date: Monday, July 13th

Time: 3:15 pm

Location: McCarty Hall A Room G186



Excess nitrogen loads are considered one of the greatest threats to the integrity of coastal ecosystems but a variety of influencing factors make the amount and rate of N input to the coast difficult to determine. Explored in this study is the effect of short term inundation on potential N flux in a coastal ecosystem. Four coastal locations were chosen in St. John's County, Florida and consisted of a submerged, marsh, upland and residential ecosystem. Three soil cores were collected from each of the four coastal ecosystems and were saturated and then inundated with a 10cm head of floodwater. Floodwater samples were then collected after 0, 6, 12, 24, 72, 120 and 168 hours and underwent analysis for TKN, $\text{NH}_4\text{-N}$ and $\text{NO}_x\text{-N}$ to determine the Total Nitrogen concentration and flux across the study period. After a one day inundation period there was no statistical difference in the total N concentration or flux in the floodwater among the four sites. After a seven day inundation period, the residential and upland TN concentrations were significantly higher than the marsh and submerged, and the TN flux from the residential ecosystem was significantly higher than the submerged ecosystem. These results show that a short term flooding event will have similar effects on N flux regardless of ecosystem, but a longer duration of inundation could lead to a significantly greater N flux from the residential ecosystem. This could possibly pose a threat as future predictions in sea level rise leave inland communities vulnerable to increased flooding events, causing excess N concentrations in the floodwater to be transported to the coast.

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