



Zooplankton in Retention Ponds

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REU Summer 2007
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06.26.2007

Question

How does pond size, runoff area, impervious cover, and age of different storm water retention ponds affect zooplankton concentration and CNP?



Hypothesis

- Percent of impervious cover is the biggest determining factor
- Impervious cover ↑
 - ↓ concentration of zooplankton
 - ↓ amount of CNP

Field Methods

- 10 L of water
- Pour in plankton net
- Get sample



Lab Methods

- Rid of extra debris
- Find concentration
- Find carbon, nitrogen, and phosphorus



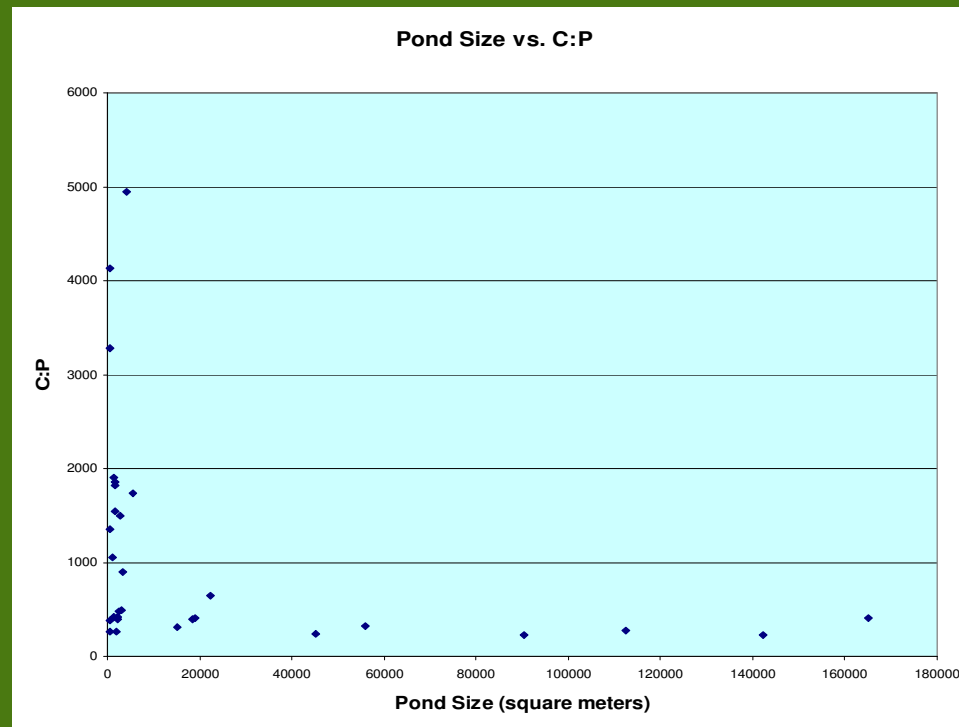
GIS

- GIS was used to find:
 - Pond size
 - Runoff area
 - Impervious cover



Concentration and CNP Pond Size Relation?

- Larger ponds are consistent
- No correlations overall



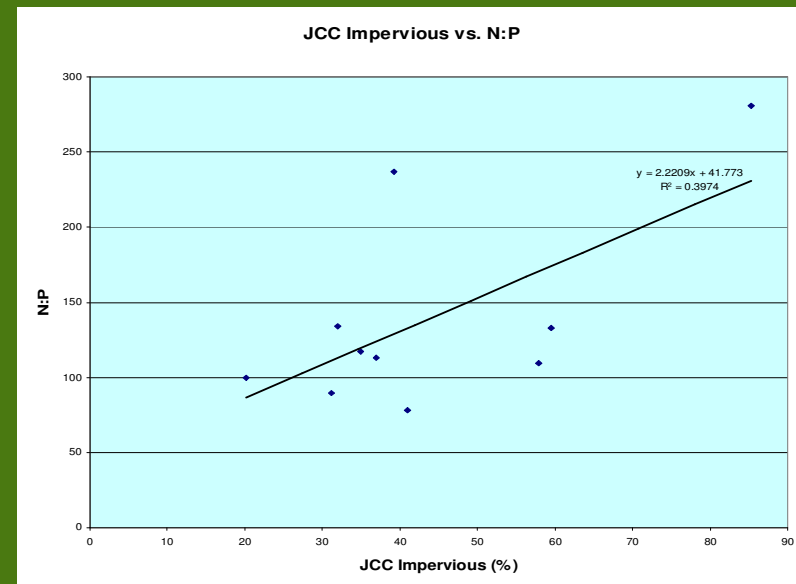
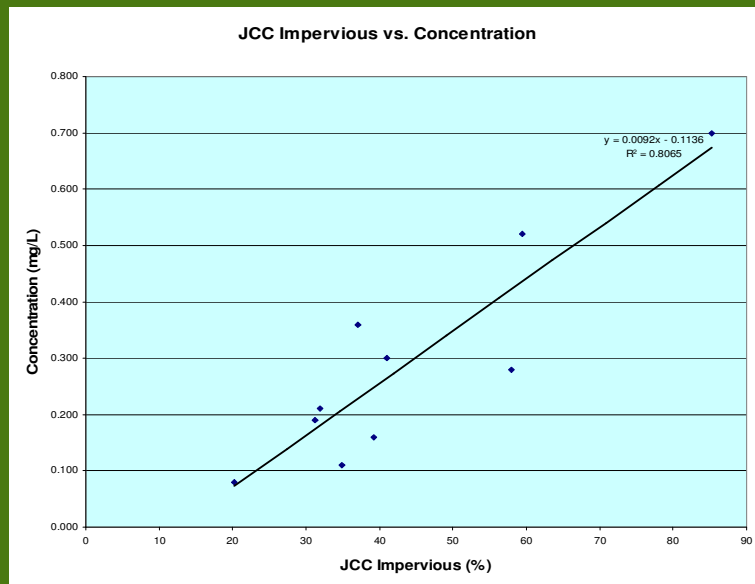
Concentration and CNP Runoff Area Relation?

- Larger runoff areas are consistent
- No correlations overall



Concentration and CNP Impervious Surface Relation?

- No relation with GIS impervious cover
- Positive relation with JCC impervious cover for concentration and N:P



Concentration and CNP Age Relation?

- No relation with pond age.





General Observations

- Redfield Ratio is 106 C: 16 N : 1 P for marine plankton
 - Data shows
 - C:P ratios in the 1000s
 - N:P ratios in the 100s
- Copper sulfate does not work



Conclusion

- Relations not strong
 - No relations with pond size and runoff area, but consistency with larger ponds and runoff areas
 - Concentration and N:P increase with impervious cover percentage
 - No relation with age



Further Research

- Look at one variable
- How does time of year affect zooplankton?
- How does type or amount of vegetation affect zooplankton?
- How does water quality affect zooplankton?
- What are the phosphorus ratios like in other areas or at different times?

Field Work is Fun !!!



Do you want to test by that
cheeseburger?

Green Frog!!!

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