Going Cray Cray with the Crawdaddies: Influences of water quality and site conditions on the diversity and abundance of crayfish communities in northern New York

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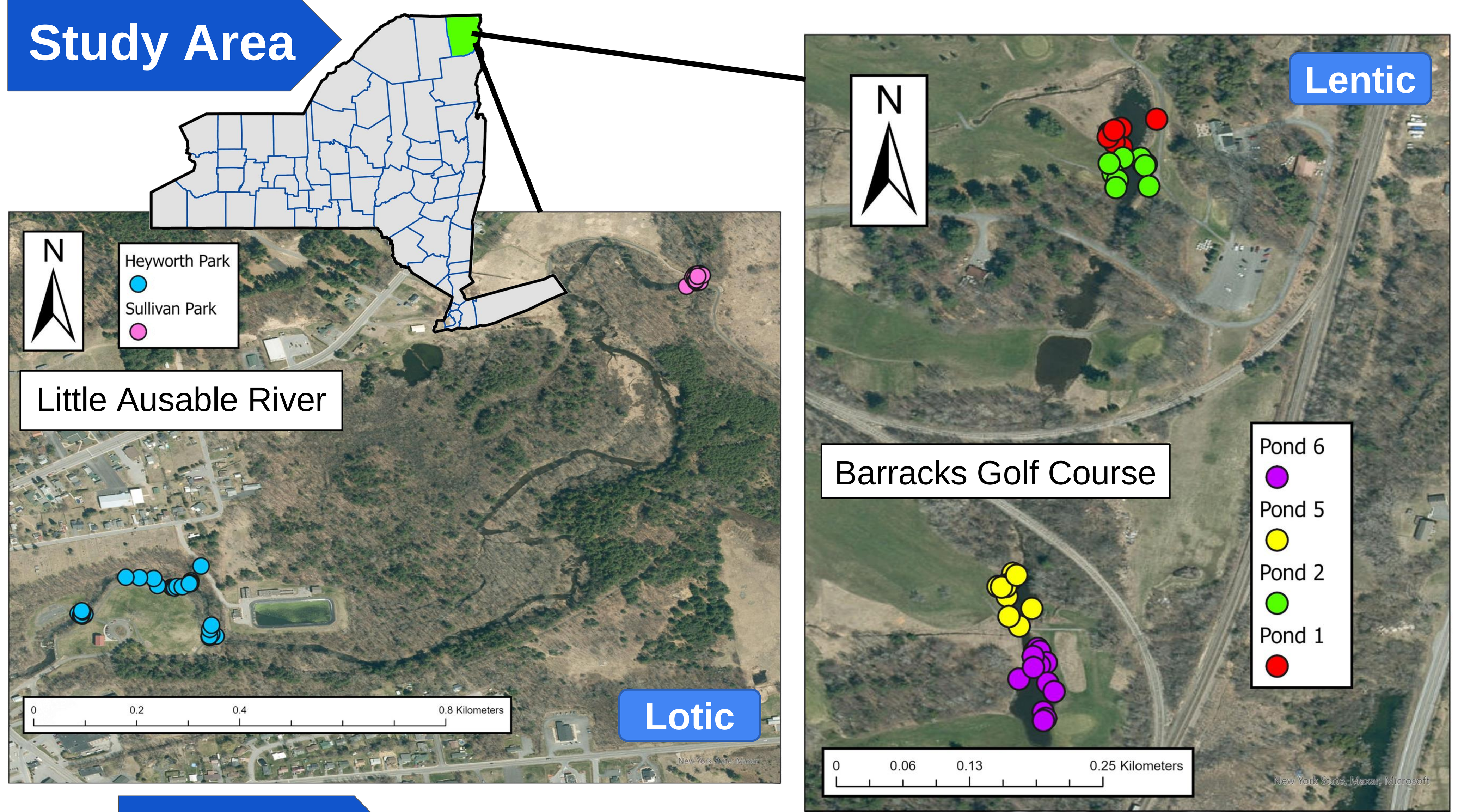
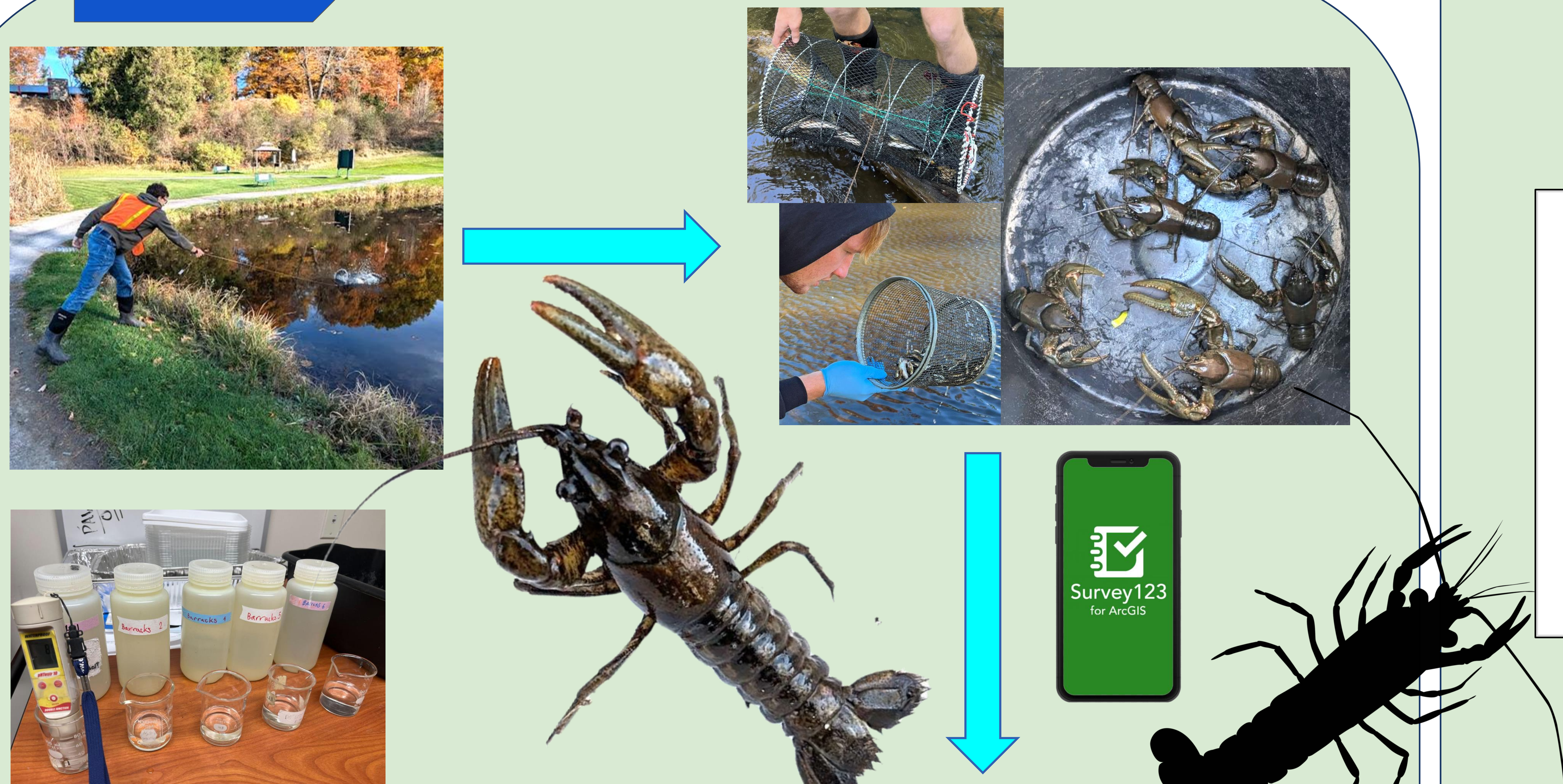
Goal & Hypothesis

- Compare crayfish abundance and diversity across lentic (Barracks Golf Course, Plattsburgh) and lotic (Little Ausable River-Sullivan Park & Heyworth-Mason Park, Peru) sites in northern New York.
- We hypothesized that there would be greater crayfish abundance and diversity in the lotic stream than the lentic ponds, given the water quality conditions of the lentic pond complex in this study.

Study Area

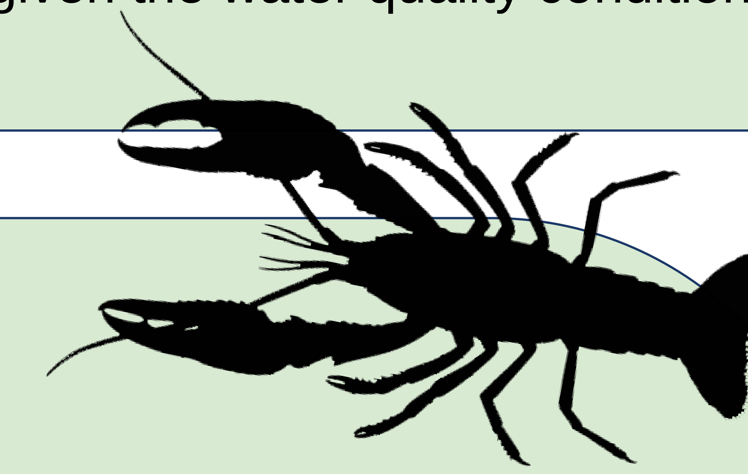


Methods

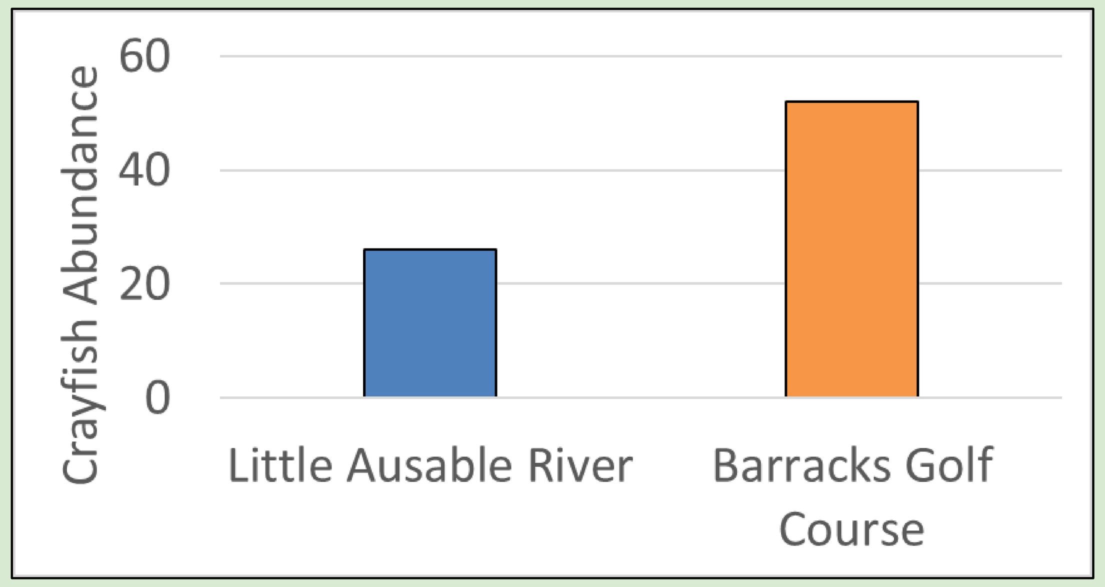


Water Quality Measurement

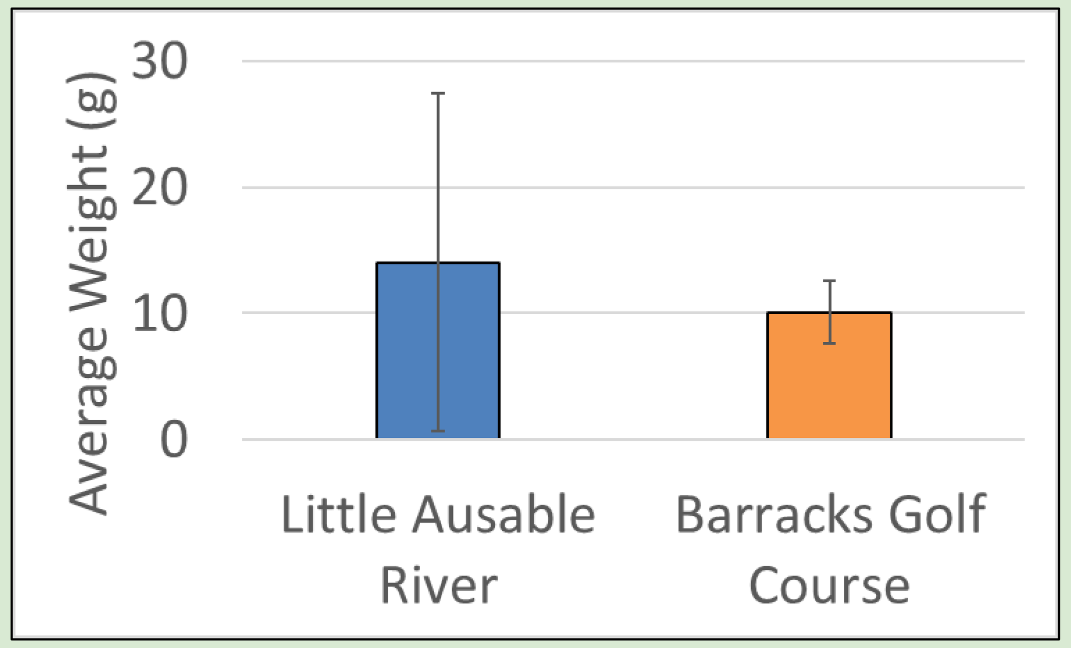
Results

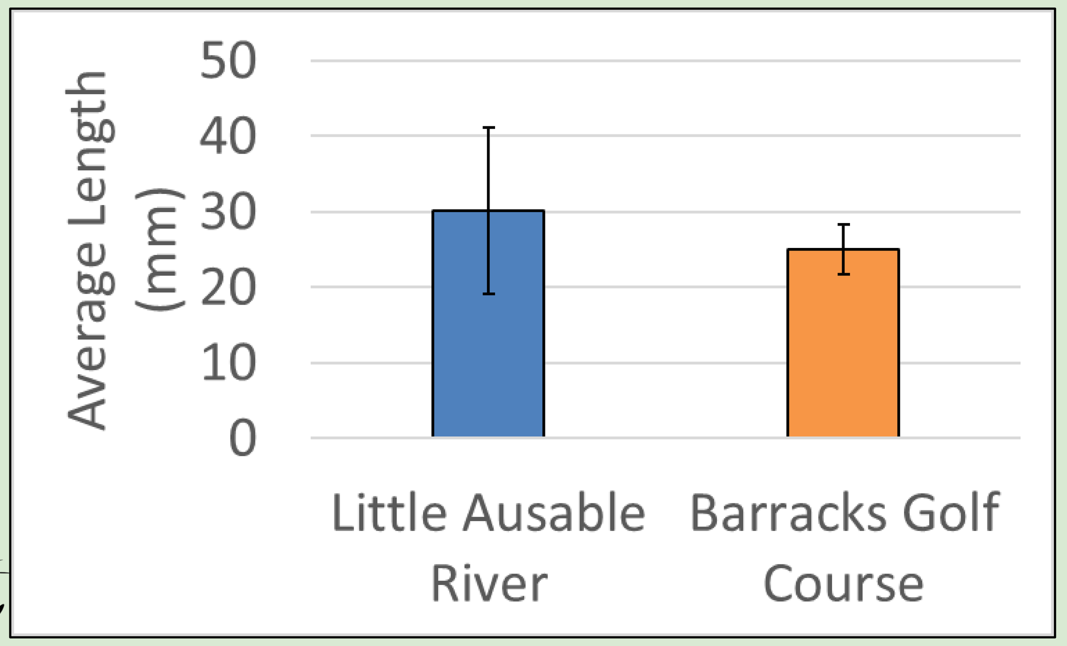


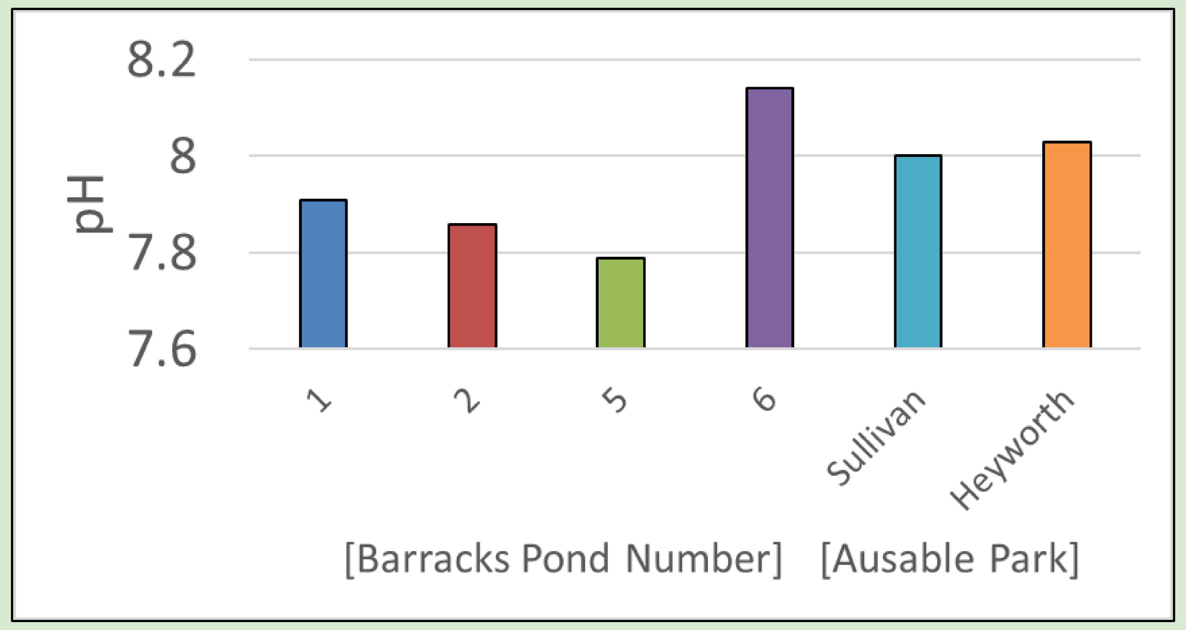
Abundance



Crayfish Condition







Water Quality

Findings

- Crayfish from the Little Ausable River (lotic) were big water crayfish (*Cambarus robustus*), a sizable crayfish known to be highly tolerant to pollution and acidity.
- Crayfish from the Barracks Golf Course Ponds (lentic) were calico crayfish (*Faxonius immunis*), which are smaller, burrowing crayfish making use of organic matter accumulating in the pond benthos.
- Crayfish abundance was 2 times higher at the Barracks Golf Course.
- Crayfish were 1.39 times heavier and 1.21 times longer at lotic sites.
- pH and conductivity showed little difference between sites, but within the lentic habitat, Pond 6 displayed a higher pH and conductivity.

Management Implications

- Crayfish are diverse and impactful invertebrates with varied habitat requirements and behaviors.
- In northern New York, crayfish presence is habitat-dependent, but not necessarily attributable to water quality.
- Crayfish provide ecosystem services in consuming aquatic plant matter and are important prey to higher trophic levels.
- Rusty crayfish are an invasive species in New York and on-going monitoring is needed.

Acknowledgements

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