The role of water source in high Arctic stream biodiversity: a study from Northeast Greenland

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Aim
To identify how different water sources affect stream biodiversity through altering stream habitat conditions. This will allow us to predict how climate change will alter Arctic stream ecosystems in the future.

Methods
• 5 streams were selected with varying water sources incorporating groundwater and snow and ice meltwater streams.
• Analysis for silica content in water samples determined water source.
• Habitat conditions were monitored by installing gauging stations in each stream to record variables such as temperature and conductivity, every 15 minutes.
• Species diversity was measured by collecting samples at each site. Species were identified to the lowest possible level in the laboratory.

Results
Dominant species adapted to cold waters. Not found in groundwater Streams.

Conclusions
• With a changing climate we expect to see more groundwater than meltwater influences to streams in the Arctic.
• Groundwater influenced streams have higher water temperatures, lower turbidity and high channel stability.
• Local extinctions of species adapted to cold water environments are expected.
• As streams become less diverse in their water source characteristics, we expect stream biodiversity to be higher in the overall area, but for there to be less differences between streams.

References

Chironomidae- non biting midge larva