

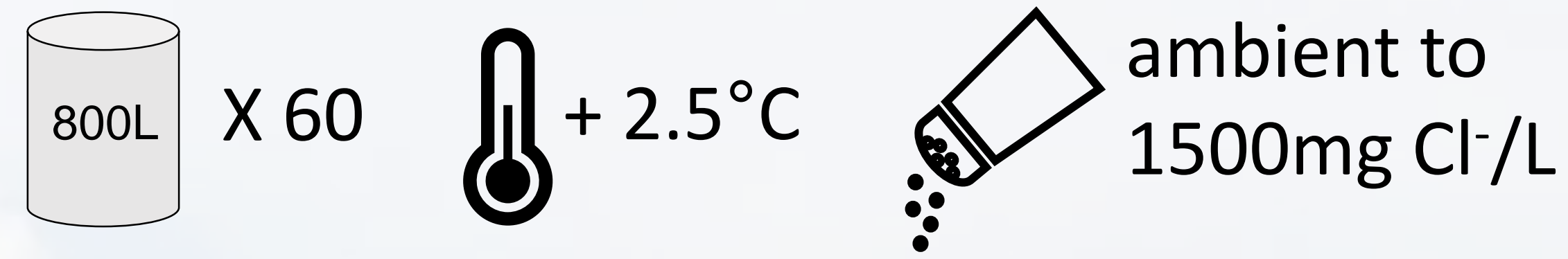
Effects of road salt and lake warming on zooplankton communities

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Background

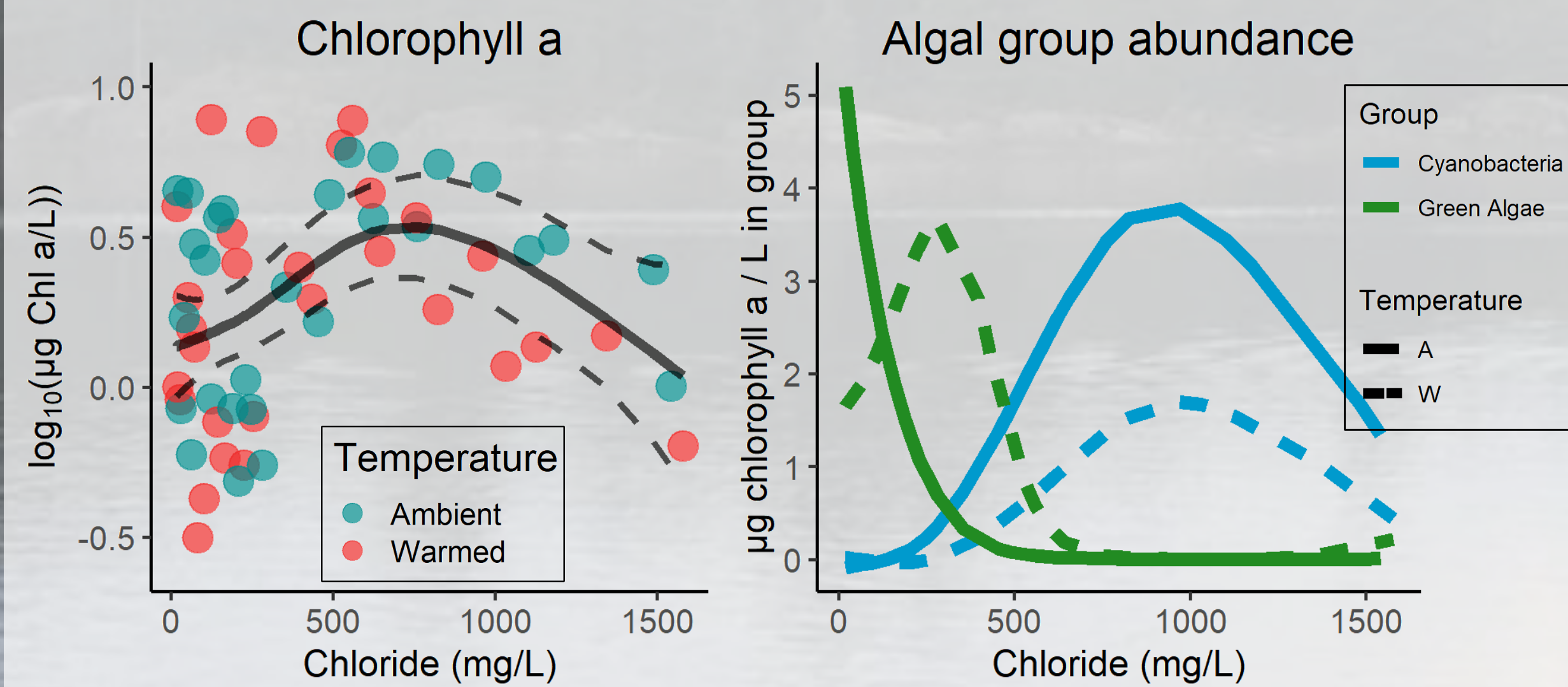
In the northern hemisphere, salts used to melt snow and ice to make roads and sidewalks safer have increased chloride concentrations of many lakes. Concurrently, lakes are warming rapidly. These two stressors will have significant consequences for aquatic organisms, including zooplankton. Current water quality guidelines (120 mg Cl⁻/L) are based on single-species, lab-based studies that we suspect will not adequately protect all zooplankton populations, especially as lakes warm.

Methods



6 week mesocosm experiment @ Paint Lake, Ontario
Chloride gradient with 30 concentrations
Ambient and warmed temperatures
Linear and generalized additive models

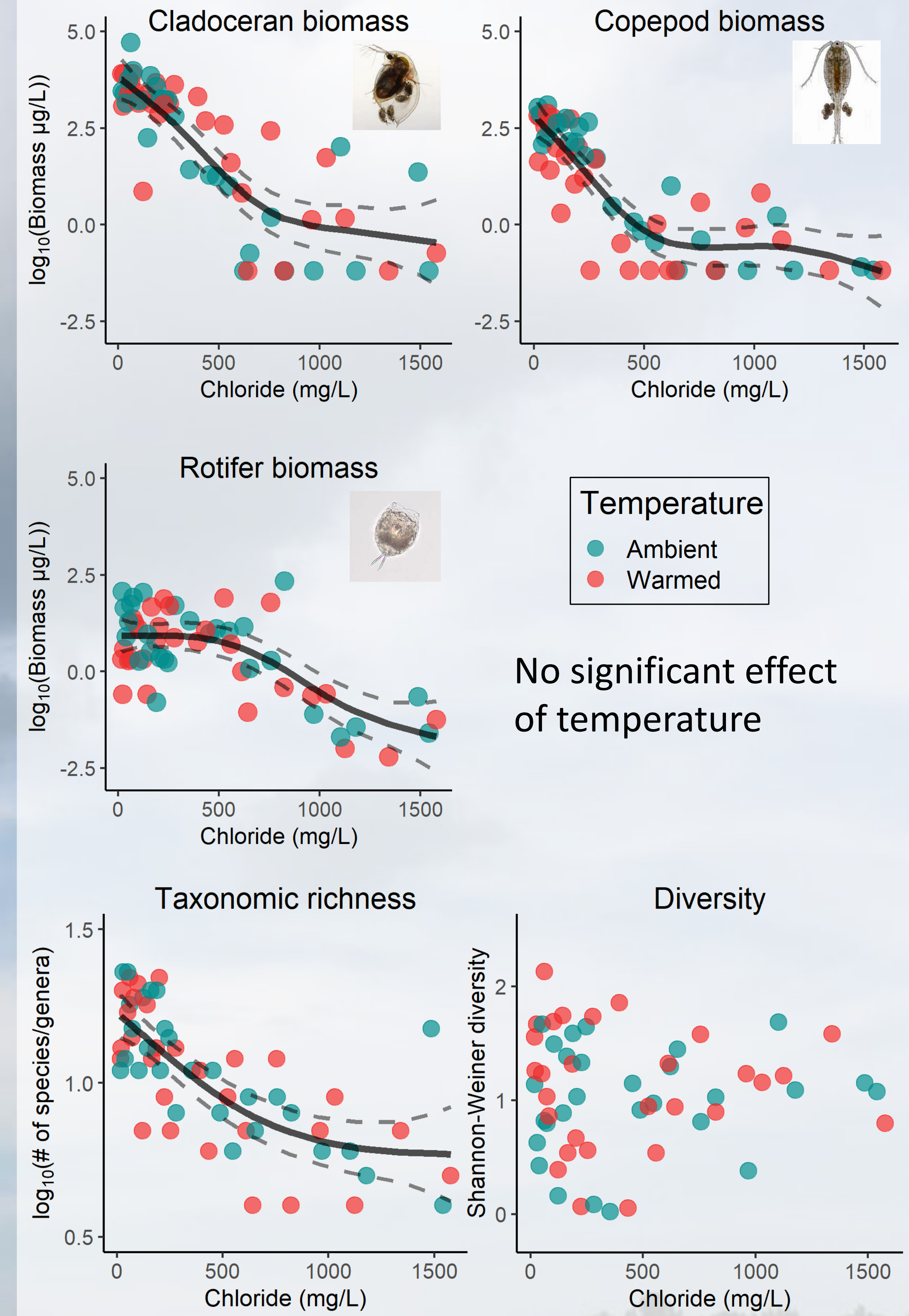
Phytoplankton



Algal abundance	Change at water quality guideline
Chlorophyll a	+ 11%
Green algae	- 27%
Cyanobacteria	no change

Current water quality guidelines do not protect zooplankton from road salt pollution

Zooplankton



No significant effect of temperature

	Change at water quality guideline
Biomass	
Cladoceran	- 46%
Copepod	- 69%
Rotifer	no change
Total zooplankton	- 54%
Composition	
Richness	- 13%
Diversity	no change



Dorset Environmental Science Centre

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