

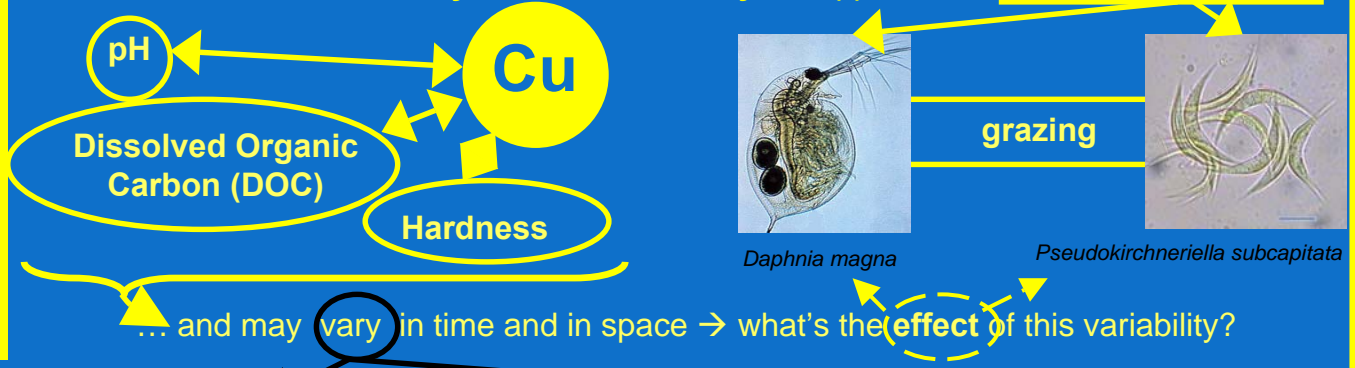
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Introduction

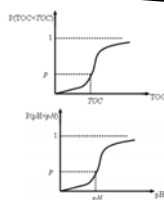
Water characteristics may determine toxicity of copper to freshwater organisms...



Methodology

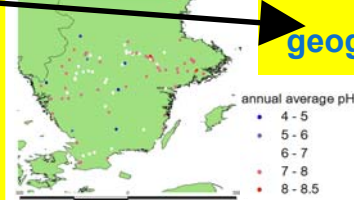
temporal variability

...quantified using cumulative probability distributions



geographical variability

...quantified using a GIS (Geographic Information System)



Biotic Ligand Model application in a Monte-Carlo approach for two species (water flea and algae)

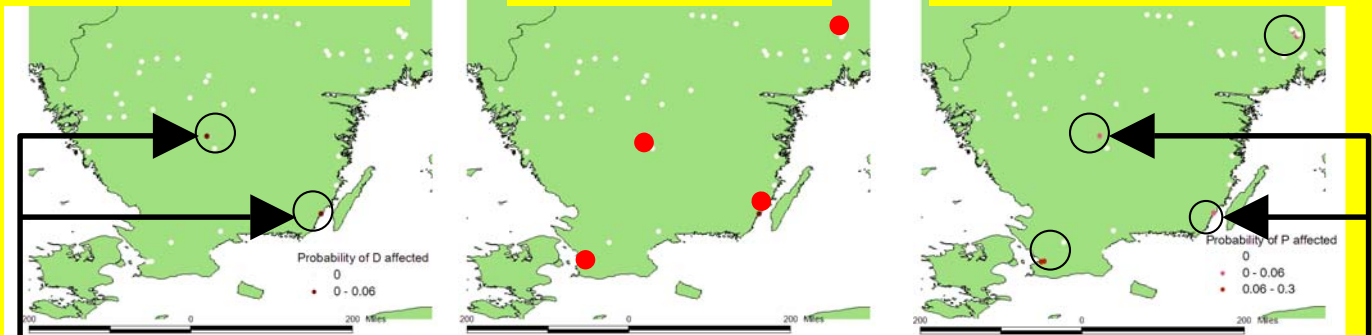
- cumulative probability distributions of the **No Observed Effect Concentration** for the modelled species at different locations in southern Sweden
- derivation of **probability of adverse effects** on both species, given a environmental copper concentration (scenario: 15 µg/L total Cu)

Results

Probability of effects on *D. magna*

Combination of these probabilities

Probability of effects on *P. subcapitata*



→ In all locations: Probability of effect to alga ≥ Probability of effect to grazer

→ Only one region where probability is between 0.006 and 0.3

→ In two locations overlap exists (probabilities for alga and grazer > 0)

→ Four locations where combination of probabilities is different from zero

Accounting for temporal **and** geographical variability may assist in **hot spot** detection