

IC of Lake and River acidification



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Acidification - Lakes and Rivers

- Started in 2004
- Participating countries: SE, NO, UK, IE
- Group leader: Leonard Sandin, SLU (phase 1: Willem Goedkoop)
- Quality elements:
 - Biology: Littoral macroinvertebrates
 - Chemistry: pH and ANC

Acidification - Water types

RIVERS

LAKES

Low alkalinity,
clear water

R-N5 (+R-N2)

L-N5 (+L-N2)

Low alkalinity,
humic water

R-N9 (+R-N3)

L-N6 (+L-N3)

Very low alkalinity sites ($\text{Ca} < 1 \text{ mg/L}$) not included

Acidification indices

	National	Common IC indices
Lakes	Raddum 1 (NO) MILA (SE) CLAMM (UK)	42 metrics, based on a common list of indicator taxa have been tested
Rivers	Raddum 2 (NO) MISA (SE) AWIC-sp? (UK)	Under development

Developments (supported by REBECCA)

- Large number of existing indicators tested
- Evaluation of indicator taxa (at different taxonomic levels) agreed across the region
- Development and testing of a large number of indicators at different taxonomic levels based on these taxa

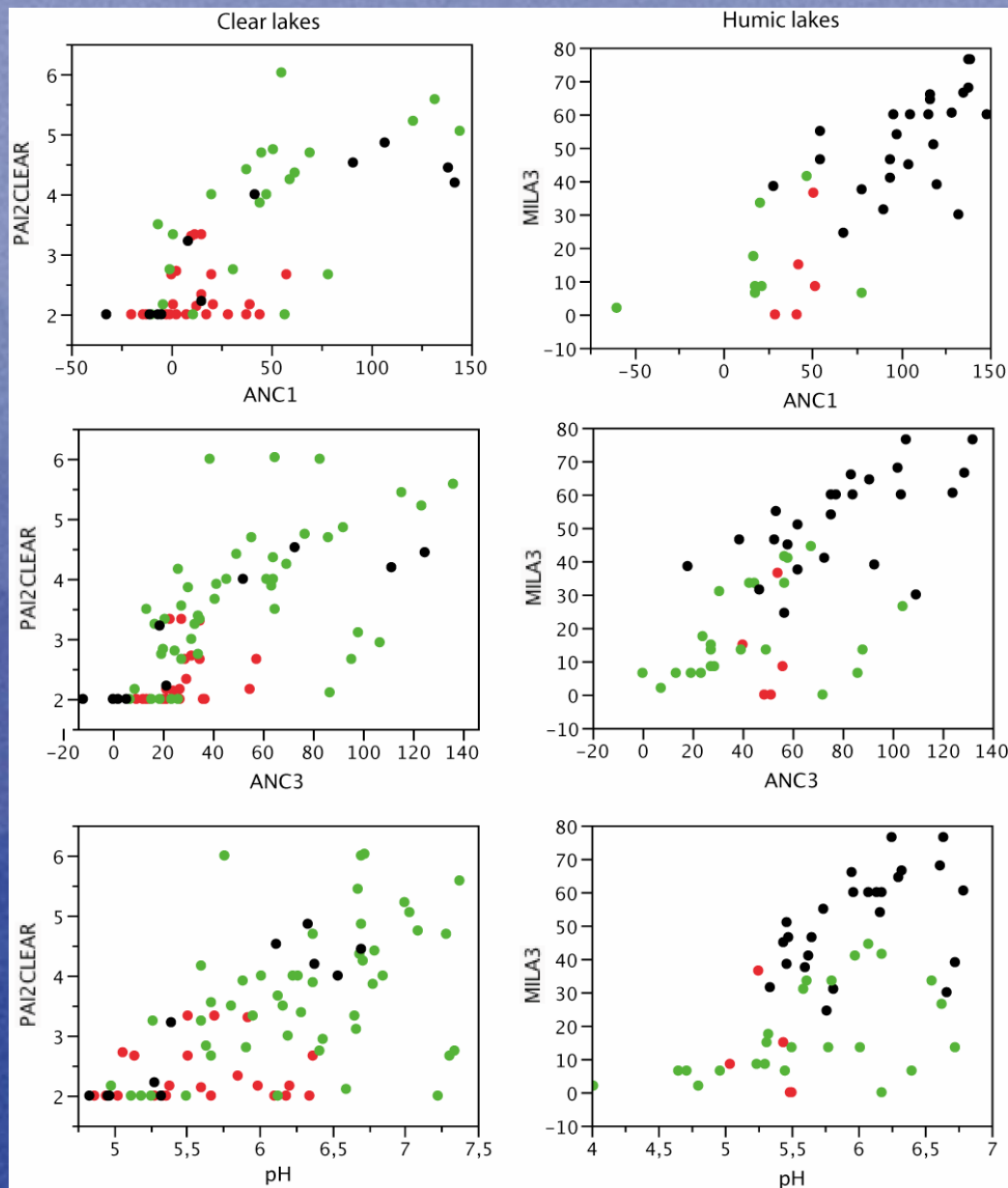
Common IC index for lakes?

PAI2Clear:

- Presence-Absence index for clear lakes
- Indicator value related to pH tolerance

MILA3 (Modified MILA index):

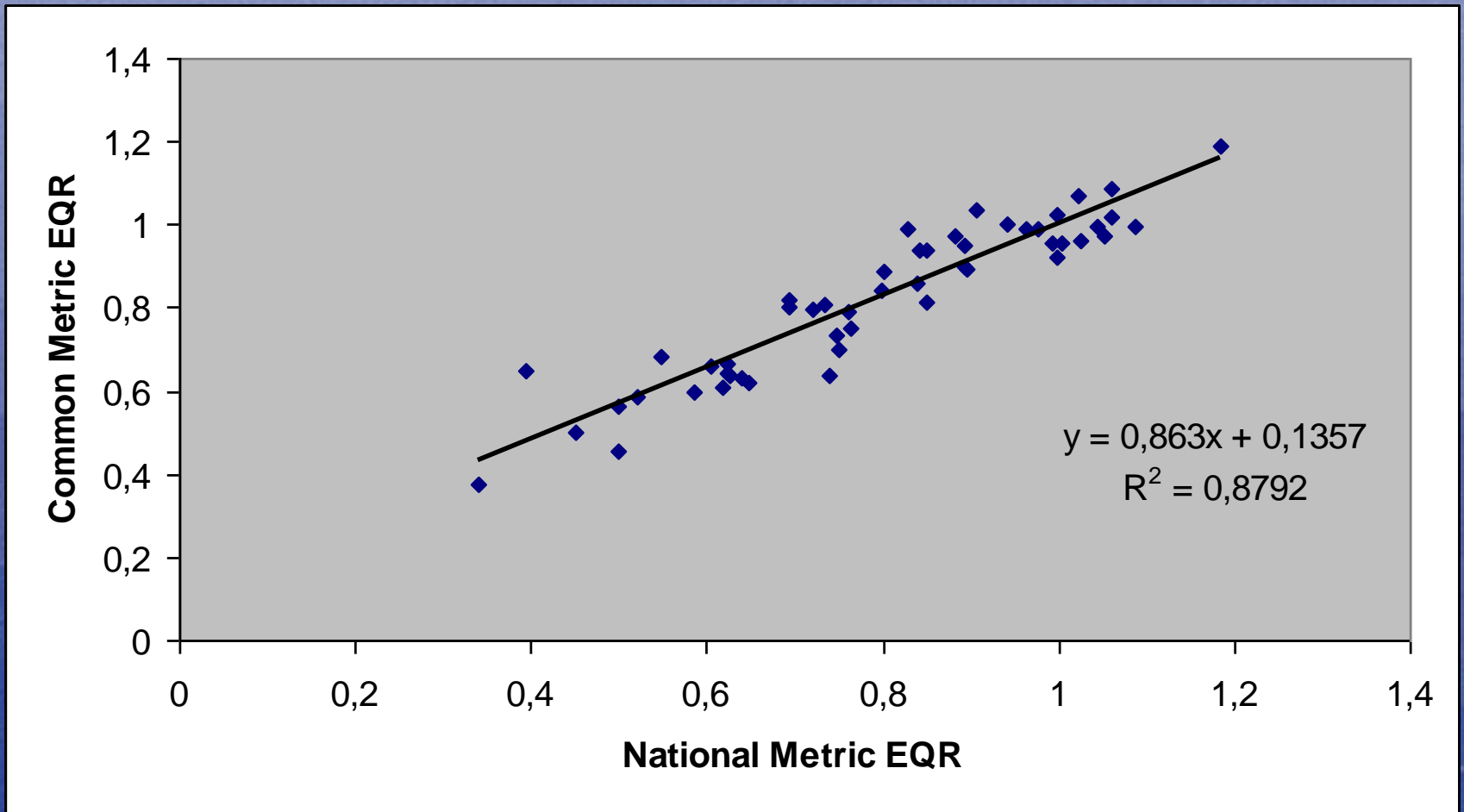
- No Gastropoda taxa
- No Ephemeroptera taxa
- AWIC-F



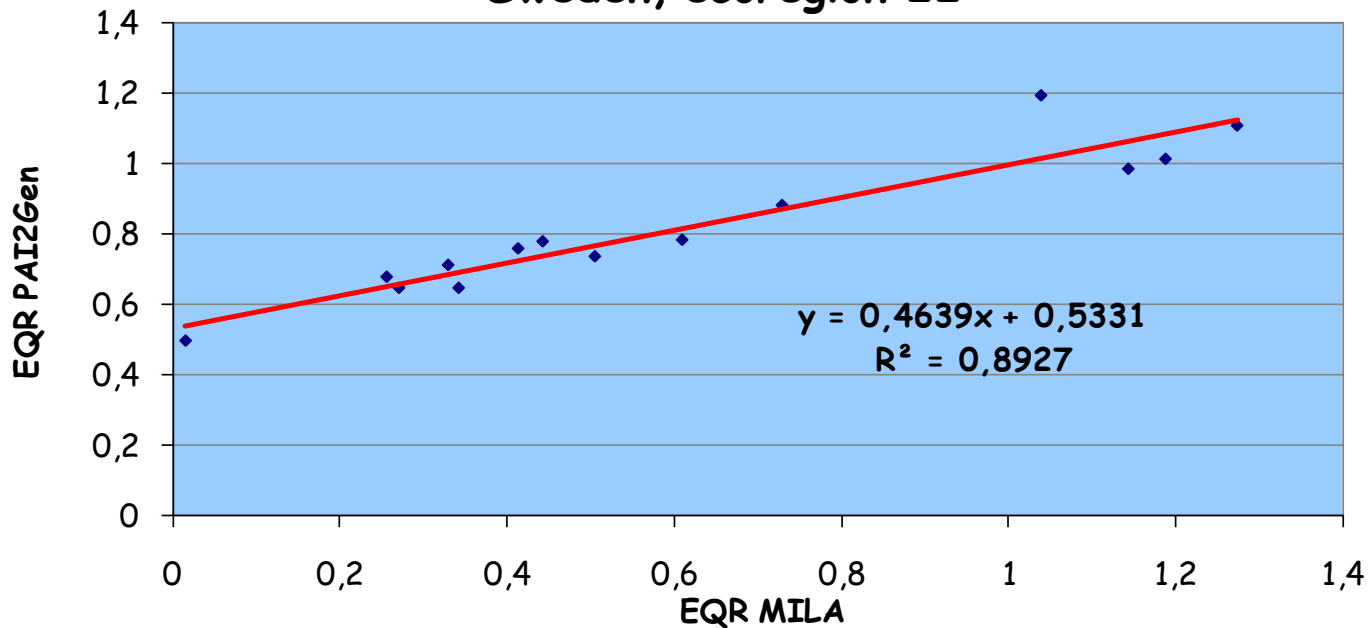
Progress: Acidification - Lakes

- Agreed on typology and reference criteria
- IC option: 2 (and 3)
- Discussions on pH versus ANC (several methods)
- SE (MISA) and UK (CLAMM) has WFD compliant methods
- Large dataset collected
- Developed and tested common intercalibration metrics
- Initial test intercalibration done: common IC metric: PAI2Gen

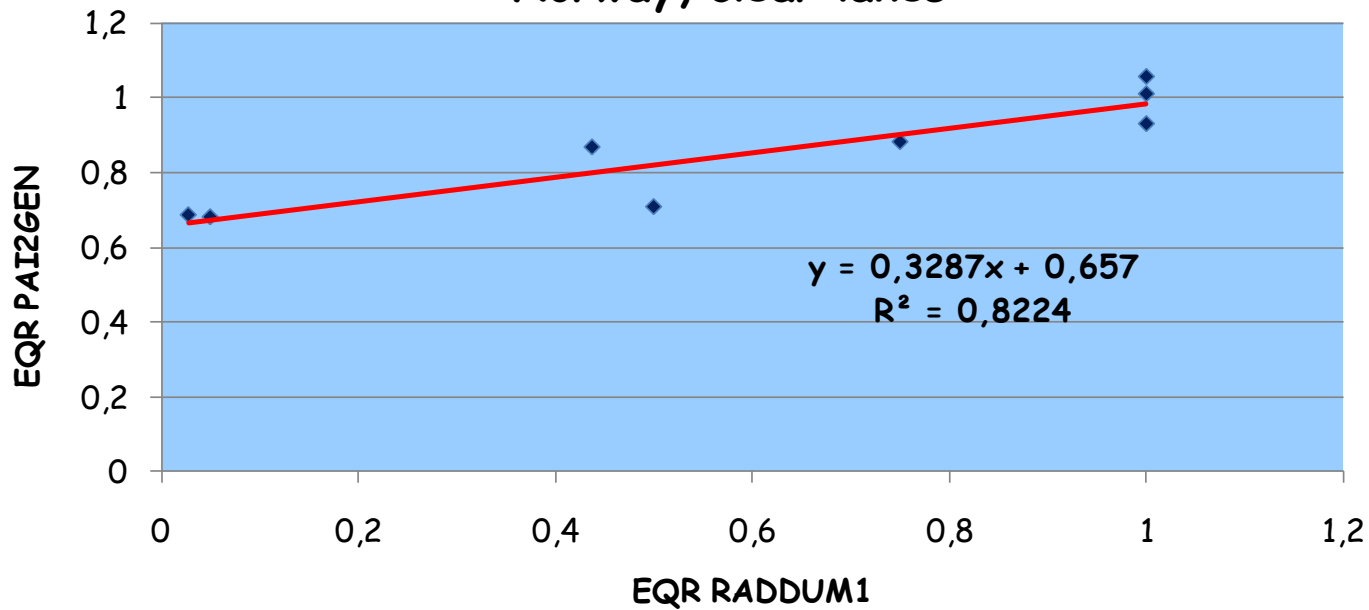
PAI2Gen vs CLAMM (UK)



Sweden, ecoregion 22



Norway, clear lakes

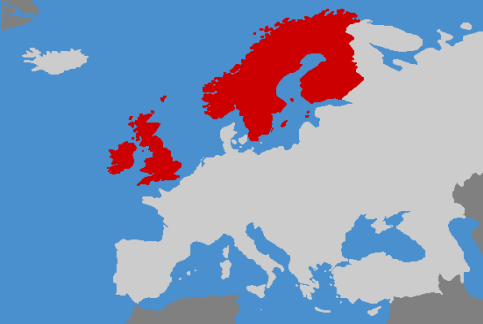


Progress: Acidification – Rivers

- Discussion on typology and reference criteria
- Discussions on pH versus ANC (several methods)
- Only SE (MISA), NO (Raddum 2) and UK (CLAMM) has WFD compliant methods
- Large dataset collected
- Developed and tested common intercalibration metrics

Problems

- Assessment systems availability
- Data availability (for certain types)
- Differences in opinion regarding low Ca lakes - *human pressure or specific type*
- Differences in opinion regarding variation in ref.cond. - *species poor sites versus insufficient sampling and identification effort*
- Differences in typology - *chemical vs bio-geographical criteria*
- Differences in reference conditions



NGIG-BF acidification



Organization	Lead SE, all countries OK, no FI
MS methods	SE, UK: official IE: unofficial, WFD not compliant NO: official, WFD not compliant (lakes)
Compliance	In progress, not yet boundary setting
Feasibility	All MS similar measure/ concept
Dataset	Large
Progress	Option 2, Option 3

Results:

2009: SE, UK (lakes)

2010: SE, UK, NO