



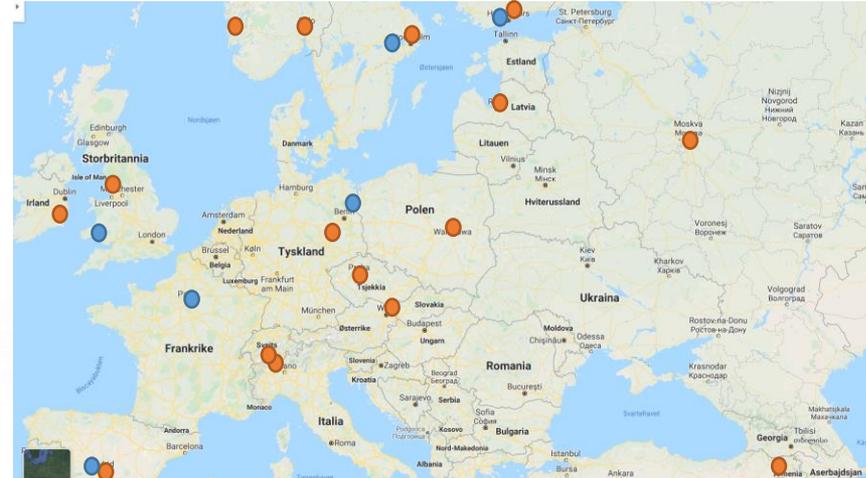
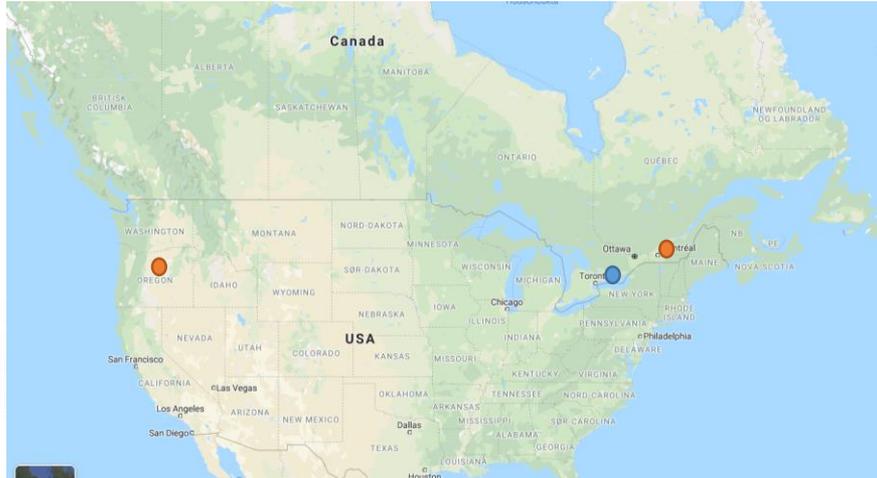
Report from ICP Waters

Remote Task Force meeting May 11 and 12

- Recent publications
- Recent results (particularly nitrogen)
- Plans for the future



First virtual meeting



- National Focal Centres
- Representation of other bodies under LRTAP



New reports

NIVA

NIVA REPORT SNO 7479-2020

ICP Waters Report 142/2020

Trends and patterns in surface water chemistry in Europe and North America between 1990 and 2016, with particular focus on changes in land use as a confounding factor for recovery



NIVA

NIVA REPORT SNO 7445-2019

ICP Waters Report 141/2019

Intercomparison 1933: pH, Conductivity, Alkalinity, NO₃-N, Cl, SO₄, Ca, Mg, Na, K, TOC, Tot-P, Al, Fe, Mn, Cd, Pb, Cu, Ni, and Zn



NIVA

NIVA REPORT SNO 7433-2019

ICP Waters Report 140/2019

Biological intercalibration: Invertebrates 2019

International Cooperative Programme on Assessment and Monitoring Effects of Air Pollution on Rivers and Lakes
Convention on Long-Range Transboundary Air Pollution

International Cooperative Programme on Assessment and Monitoring Effects of Air Pollution on Rivers and Lakes
Convention on Long-Range Transboundary Air Pollution

NIVA

NIVA REPORT SNO 7437-2019

ICP Waters Report 139/2019

Proceedings of the 35th Task Force meeting of the ICP Waters Programme in Helsinki, June 4-6, 2019

Paper

ENVIRONMENTAL
Science & Technology

Article

Cite This: *Environ. Sci. Technol.* 2019, 53, 1834–1843

pubs.acs.org/est

Improved Environmental Status: 50 Years of Declining Fish Mercury Levels in Boreal and Subarctic Fennoscandia

Hans Fredrik Veiteberg Braaten,^{*,†} Staffan Åkerblom,[‡] Kimmo K. Kahilainen,^{§,||} Martti Rask,[⊥] Jussi Vuorenmaa,[#] Jaakko Mannio,[#] Tommi Malinen,^{||} Espen Lydersen,[¶] Amanda E. Poste,[‡] Per-Arne Amundsen,[□] Nicholas Kashulin,[■] Tatiana Kashulina,[■] Petr Terentyev,[■] Guttorm Christensen,[○] and Heleen A. de Wit[‡]



NIVA

www.icp-waters

International Cooperative Programme on Assessment and Monitoring Effects of Air Pollution on Rivers and Lakes
Convention on Long-Range Transboundary Air Pollution



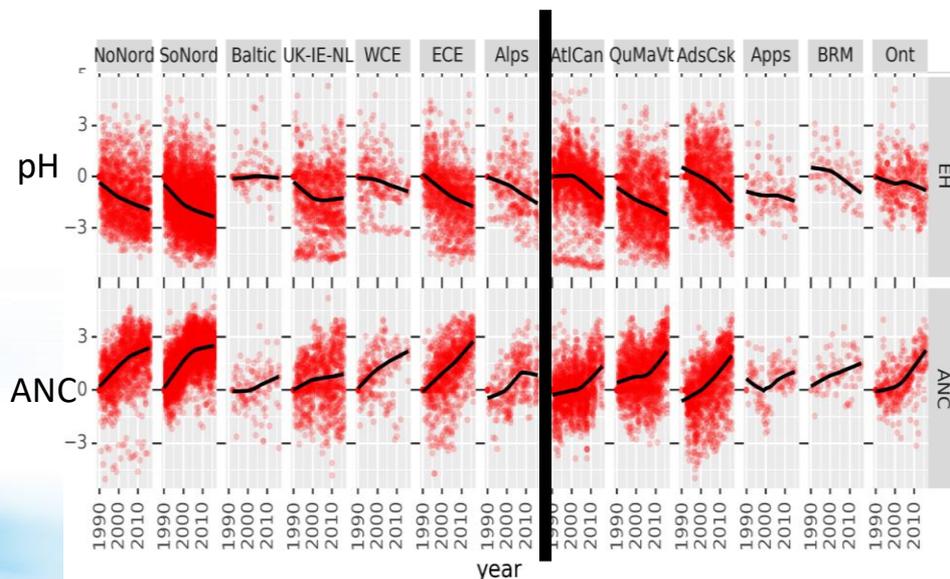
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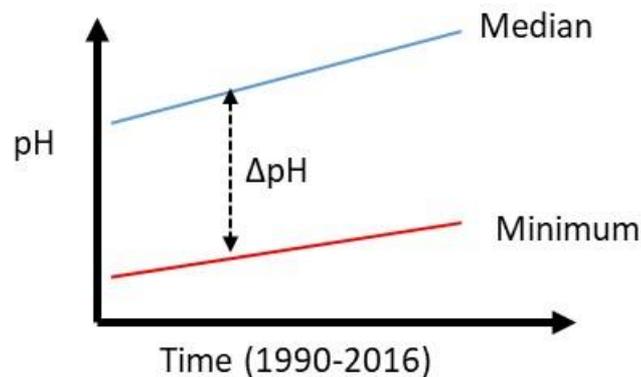
Trends for 1990-2016 (Garmo et al 2020)



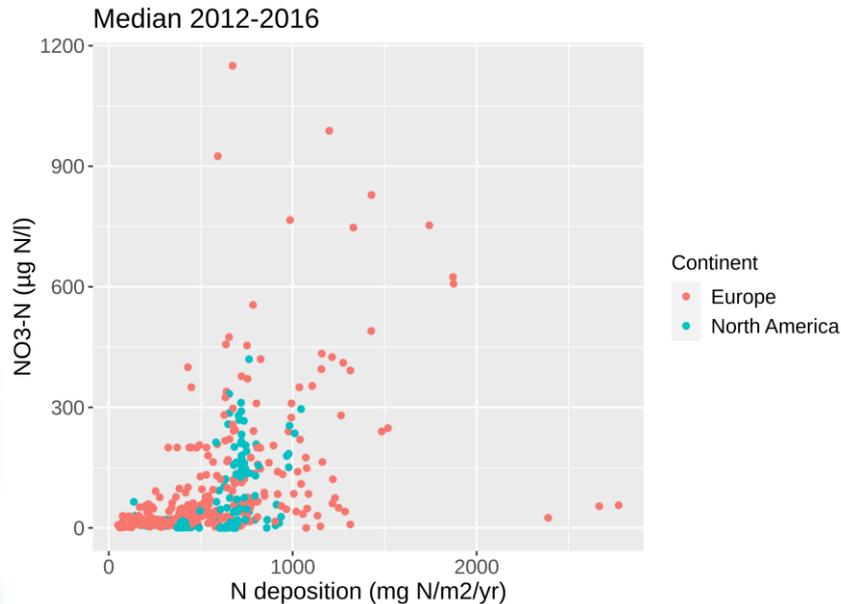
Surface waters show recovery



Acidic episodes have become less severe



Trend in nitrogen – ongoing analysis



500 sites with long-term records (1990-2016) in Europe and North America

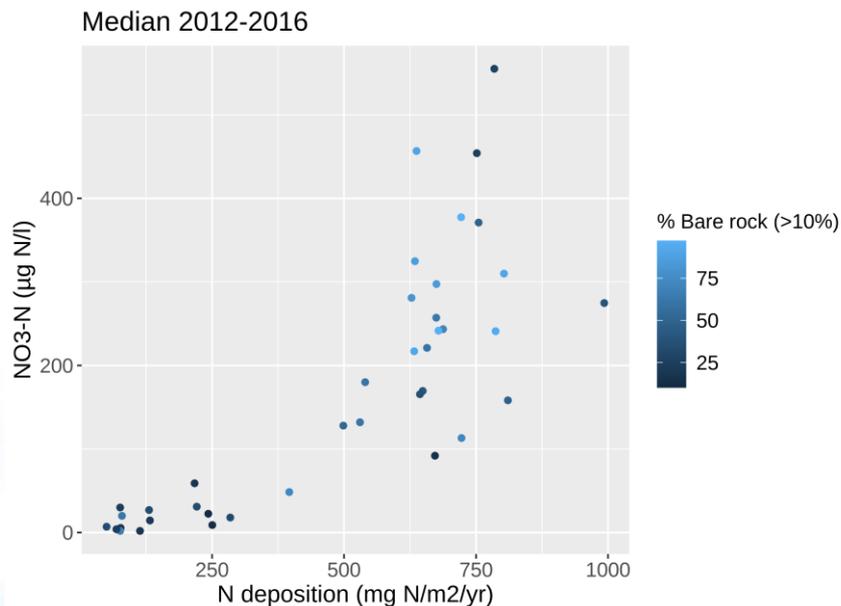
- Deposition:
<1 to >15 kg N/ha/yr

Concentration:

- <20 to >300 µg/L NO₃-N

- Mainly natural land cover:
forest, wetlands, mountains
(bare rock)

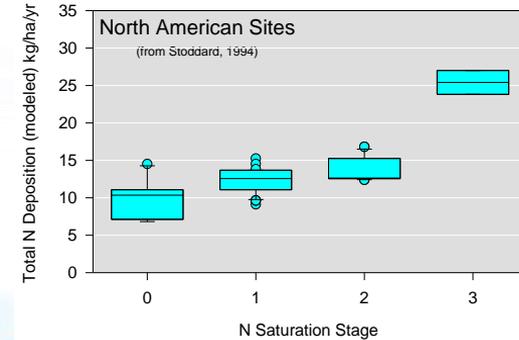
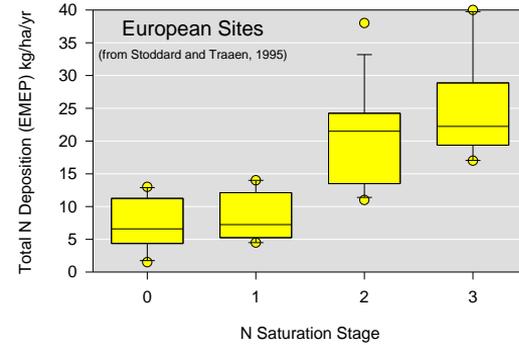
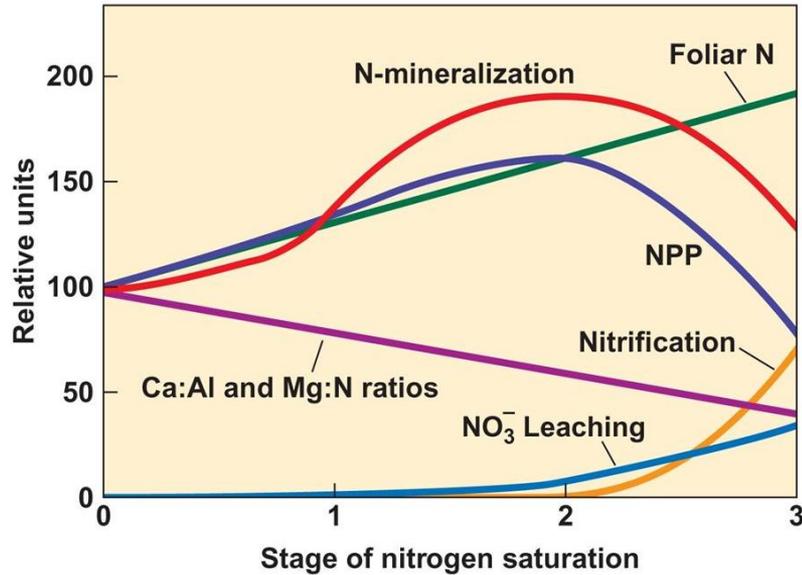
Spatial analysis



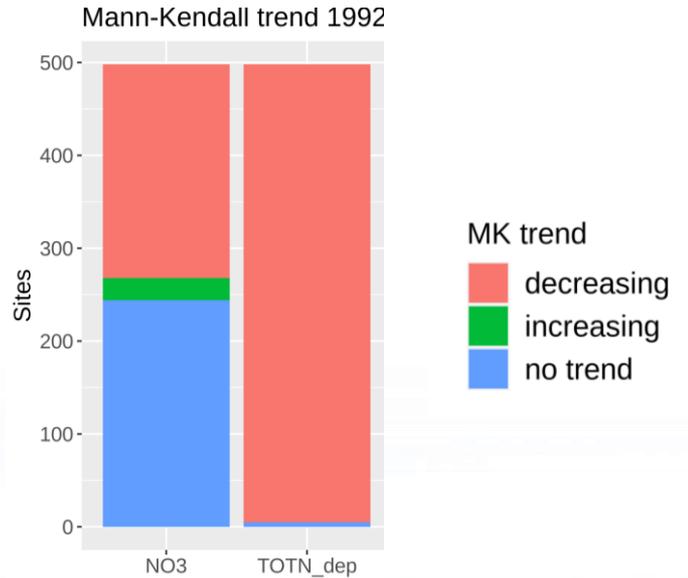
Highest NO₃ concentrations in lakes and rivers where

- -N deposition is highest
- -catchment N retention is limited (because of thin soils/bare rock)

Nitrogen saturation – NO₃ leaching is an indicator

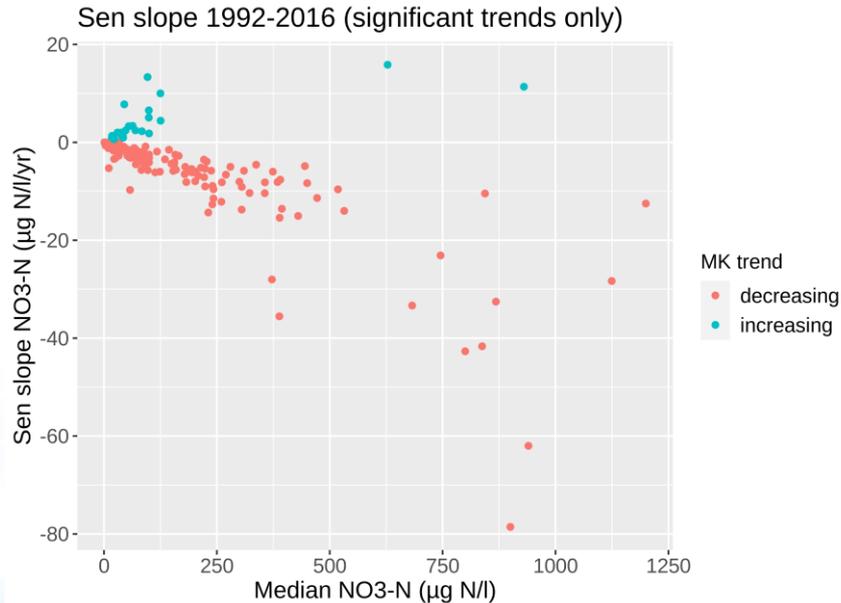


Trends in N deposition and surface water NO₃



- Significant declines in N deposition – nearly everywhere
- Decreasing and non-significant trends in NO₃ concentration dominate
 - Some upward trends (mainly Sweden, NE US)

Largest trends in NO₃-rich surface waters



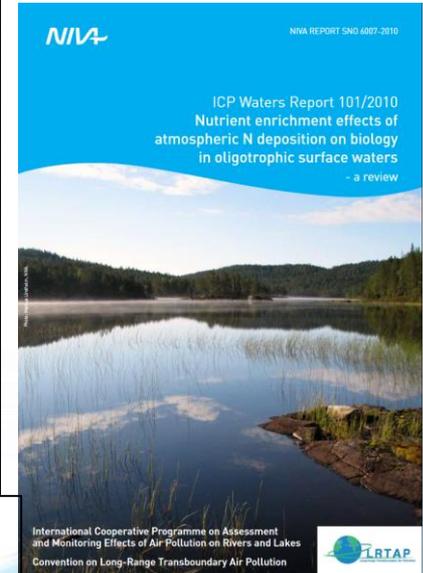
- In agreement with ICP IM results (presented by Jussi yesterday)
- Big question:
 - Is this all driven by N deposition (no!), land cover (no!), climate (?), or a combination of factors (probably...)
 - Next step: more advanced statistical analysis (GAMM)

Plans for the future - I

- Combined report addressing trends in N and empirical loads for nitrogen (ongoing process led by CCE), to be delivered in 2021
- Literature review and data analysis on biological responses to nitrogen (Nordic database), participation in expert workshops



Proceedings from expert workshop in 2010
Bobbink and Hettelingh (eds), 2011



De Wit and Lindholm, 2010
Literature review

Plans for the future - II

Report for 2022

- Most relevant topic is probably biological recovery and critical limits (dose/response relationships)

Task Force meeting 2021

- Riga welcomes us again!
- Joint with ICP IM?

Common for all ICPs

- Review and revision of the Gothenburg protocol
- Inputs to the Scientific Strategy
- Nitrogen might be a subject that ICPs could collaborate on more than they do at present (not just critical loads)