UNECE

wge Working Group on Effects of the Convention on Long-range Transboundary Air Pollution

ICP MODELLING AND MAPPING

CCE and AMP contribution to the GP REVIEW

Markus Geupel, Thomas Scheuschner (CCE), Gudrun Schütze (AMP)
Alice James Casas (Chair ICP M&M)

8th Joint WGE / EMEP meeting
Geneva, 12 – 16th September 2022

Contacts alice.james@ineris.fr cce@uba.de

The work of the AMP was performed in fruitful collaboration with HELCOM

Review of the Gothenburg Protocol

Background and content of the presentation

- **EB document ECE/EB.AIR/2020/3 – ECE/EB.AIR/WG.5/2020/3 for the Review of the Gothenburg Protocol**

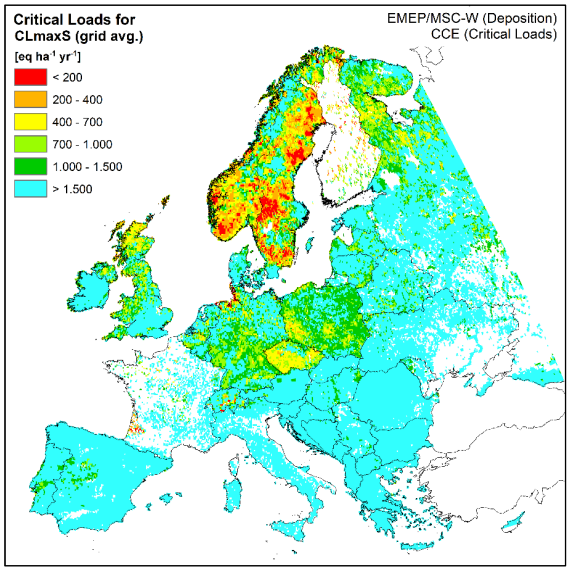
- Question 2.2 b. What is the annual change (or change every 5 years) in exceedance of Critical Loads for acidification and eutrophication between 1990 and 2019 in terms of percentage ecosystems with exceedances and accumulated excess, based on current Critical Loads? What are projected changes up to 2030 and beyond?

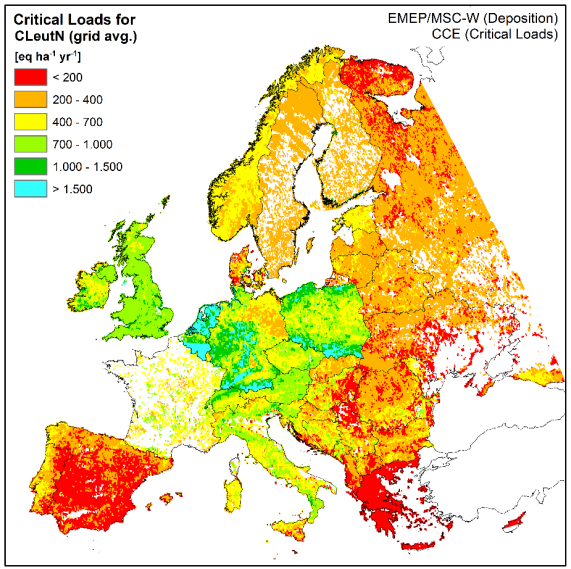
- Question 2.8. What are the expected impacts of new scientific findings on environmental and health effects assessments, including marine ecosystems?

- The final results of CCE and AMP including scenario data have been sent in a final informal documentations (for Annex II?) to WGE late August / early September 2022

Review of the Gothenburg Protocol

Critical Load database 2021



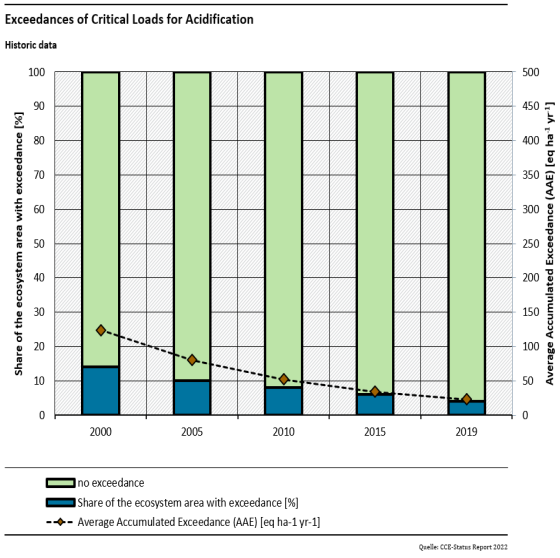


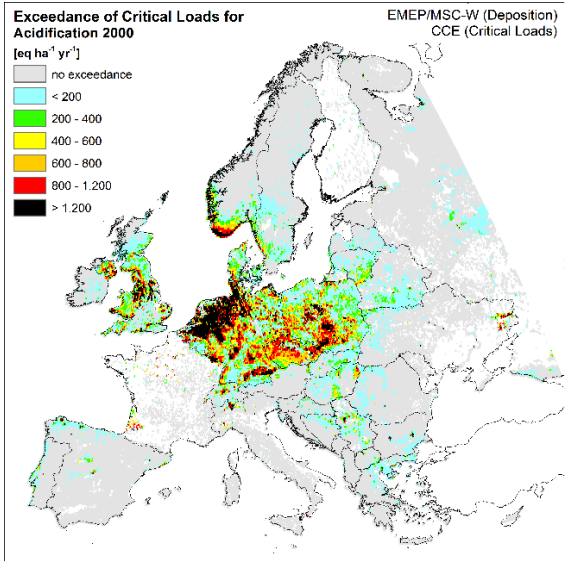
- National CL data submitted with the CFD 19-21
- CL data calculated with the CCE background database
- CL information available for 4.1 million sites in Europe
- 2.9 million km² for acidification impacts → mainly forests (54%), freshwater ecosystems (24%) and grasslands (16%)
- 2.6 million km² for the effects of eutrophication → mainly forests (65%) and different types of grasslands (20%).

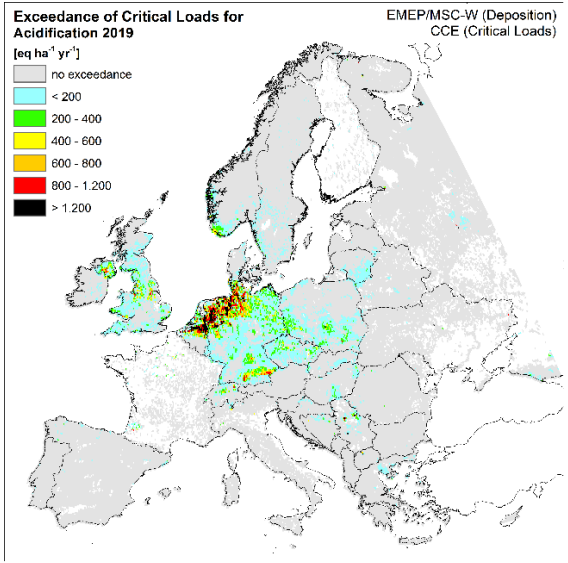
Review of the Gothenburg Protocol

Exceedance assessment: Historic data acidification

Based on CEIP emission data 2021 and deposition data modelled with EMEP model version rv4.42 (2021)



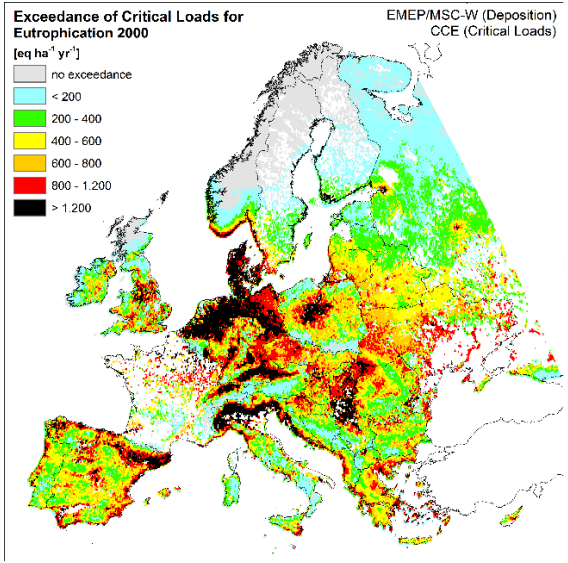


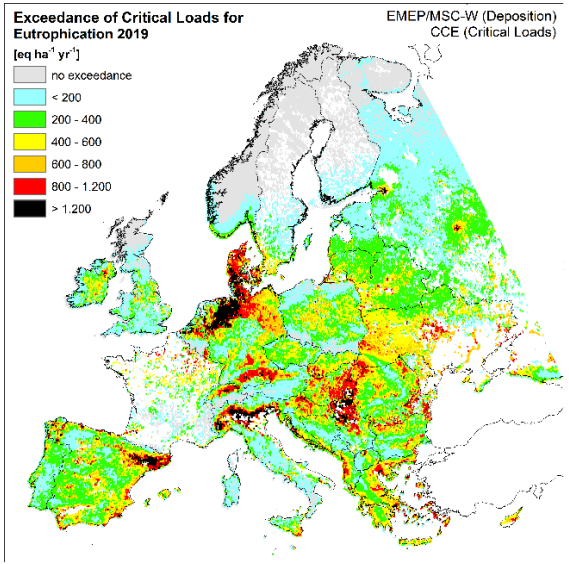


Review of the Gothenburg Protocol

Exceedance assessment: Historic data eutrophication

Based on CEIP emission data 2021 and deposition data modelled with EMEP model version rv4.42 (2021)



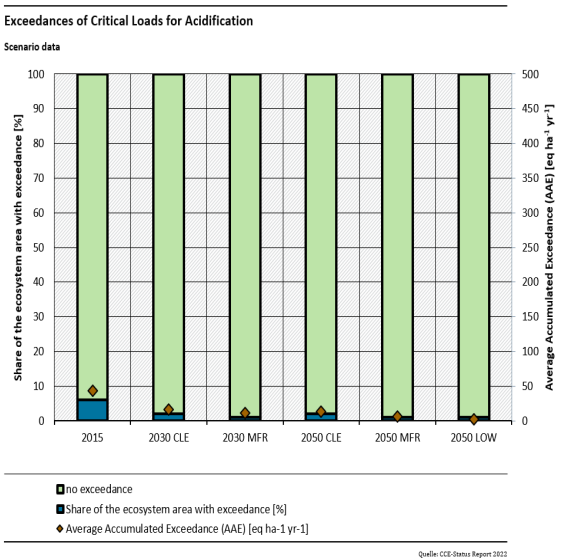


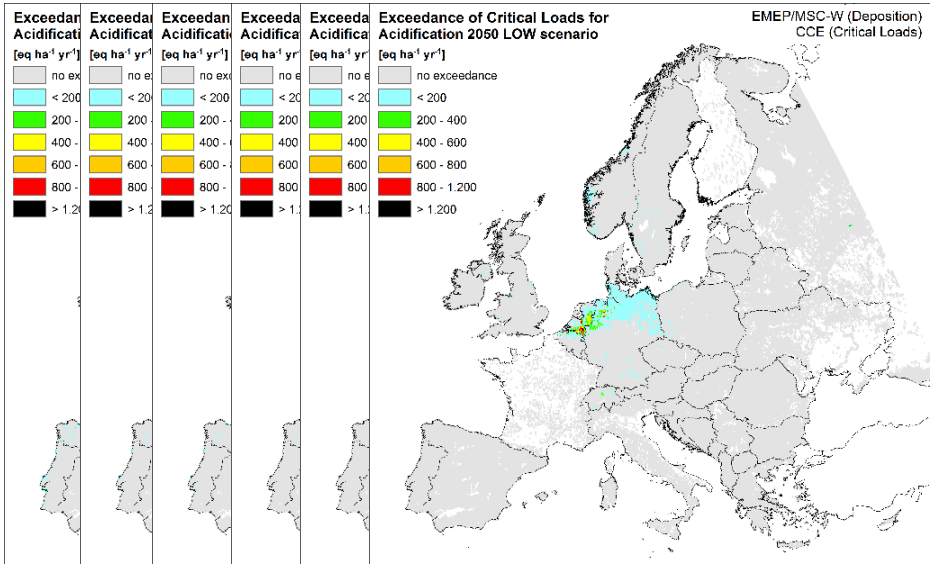
Review of the Gothenburg Protocol

Exceedance assessment: Scenario data acidification

Based on 5 CIAM emission scenario data 2022 and deposition data modelled with EMEP model version rv4.45 (2022)

- 2030 current legislation (CLE)
- 2030 most feasible reduction (MFR)
- 2050 current legislation (CLE)
- 2050 most feasible reduction (MFR)
- 2050 global climate mitigation (LOW)



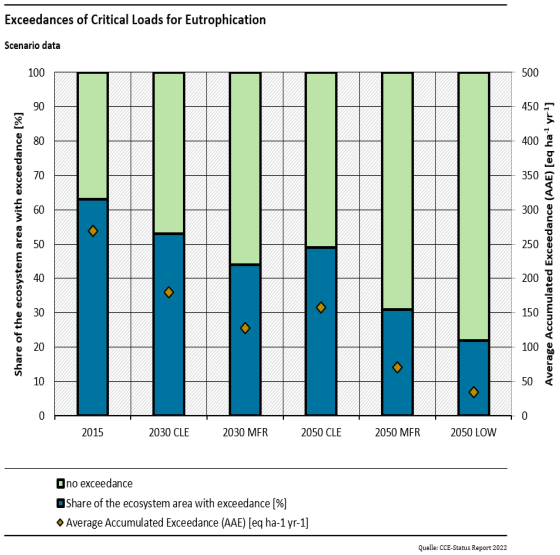


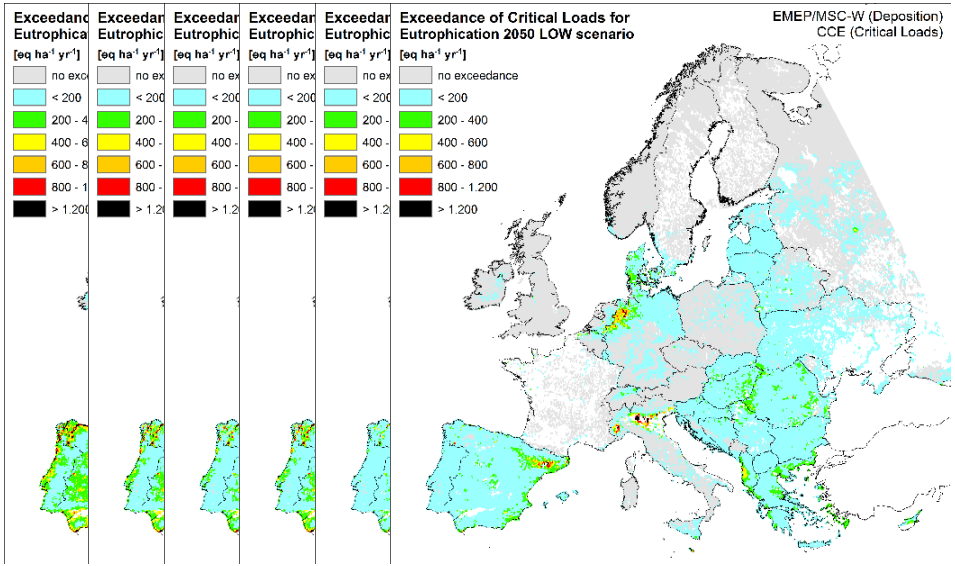
Review of the Gothenburg Protocol

Exceedance assessment: Scenario data eutrophication

Based on 5 CIAM emission scenario data 2022 and deposition data modelled with EMEP model version rv4.45 (2022)

- 2030 current legislation (CLE)
- 2030 most feasible reduction (MFR)
- 2050 current legislation (CLE)
- 2050 most feasible reduction (MFR)
- 2050 global climate mitigation (LOW)



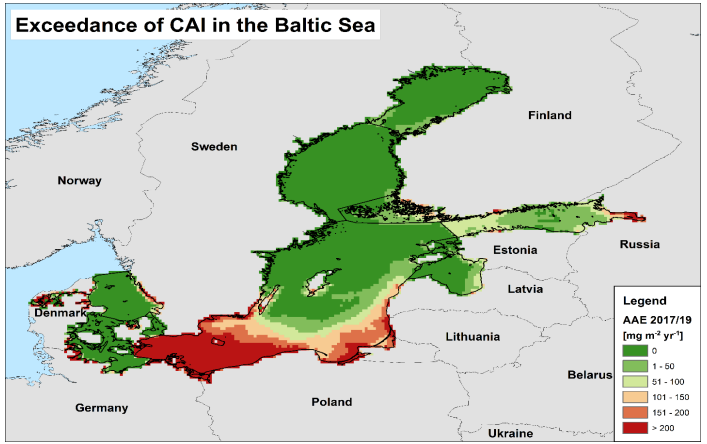


Review of the Gothenburg Protocol

Estimation of Exceedance of the Critical Atmospheric Input (CAI) of nitrogen to the Baltic Sea

A cooperation of the Ad-hoc Marine Group (AMP) with the RedCore-DG of HELCOM

- For the first time AAE of CAI was estimated for a marine ecosystem;
- CAI, which only address the open sea, are exceeded in 2019 in all 7 Baltic Sub-basins, but AAE is low compared to terrestrial systems in Central Europe;
- Even with MFR some exceedance remains in 2030;
- The most sensitive coastal areas (1 nautic mile zones) are not considered since they fall under the WFD). They probably get rel. high deposition;
- The EMEP SB/WGE Bureaux agreed to continue the work of AMP, it is proposed that the work will be steered by the CCE



Baltic Sub-basin	CAI [kg ha^{-1} yr^{-1}]	AAE 2019 [kg ha^{-1} yr^{-1}]	AAE 2030 Baseline	AAE 2030 MFR
Baltic Proper	4.20	1.78	0.71	0.38
Bothnian Bay	2.31	0.02	0.00	0.00
Bothnian Sea	3.99	0.06	0.00	0.00
Gulf of Finland	5.41	0.08	0.00	0.00
Gulf of Riga	5.34	0.13	0.00	0.00
Kattegat	9.64	0.25	0.03	0.01
Danish Straits	13.48	0.09	0.02	0.00
Total/Avg		**0.94**	**0.11**	**0.06**