

Statement on peatland restoration and rewetting



Carbon Farming Practices

Climate baseline and climate benefits of peatland rewetting

Verification

In-situ C monitoring
CO₂ fluxes (reference to practices is difficult)
COPERNICUS *)

Uncertainties

QA/QC

MRV:
Independent data sets

Model calibration

GHG Inventory

IPCC 2013 Suppl. on Wetlands

Aggregation

Inheritance of common nomenclature as stratification

Quantification of effects of practices

Modelling

Monitoring

Nomenclature of practices in different policy schemes (e.g. CAP) - see also SWOS ^{x)} /MAES for wetlands

^{x)} Satellite-based Wetland Observation Service

Needed: emission/removal or “management” (rewetting) factors by ecosystem/peat type and practice (e.g. characterized by spring water table, O/H depth, SOC “class”/peat type)
Spatial heterogeneity of organic horizons is large (effects of intraannual “water” dynamics, peat type, decomposition status)

*) COPERNICUS climate change service (C3S): atmosph. GHG concentrations (global data with averaged concentrations. Not providing national or regional data)

Peatland

Organic soils/peat in GHG inventory

Approx. EU GHG inventory 2019: EU's total emissions decreased by close to 4 %, compared with 2018 (in 2019 ca. 24 % below 1990 levels)



Practices

(European GHG, NIR 2020)

1. Agriculture: N inputs to soils

Direct N₂O Emissions From Managed Soils

- 30.6% of total agricultural emissions and 72% of total agricultural N₂O emissions
- Subcategory “**Cultivation of organic soils (histosols)**”: N₂O emissions from mineralization from organic soils

2. LULUCF: drained organic soils and peat extraction

Emissions from organic soils: decreased since 1990 (FI+ SE > 50%); mostly reported under **Forest** (drained organic soils). **Wetlands**: mostly dominated by managed peat, mostly reported as CO₂ source (peat extraction is main driver)

- 18.672 kha that are mainly located in northern countries
- Total CO₂ emissions: 94.587 kt CO₂ (35% of total EU net removals from LULUCF)

Peatland

Drainage and rewetting

Non-key categories under LULUCF

Emissions and removals from drainage and rewetting and other management of organic and mineral soils (change 1990 – 2018):

- *Forest* CH_4 (-25%), CO_2 (36%), N_2O (-4%)
- *Cropland* CH_4 (-19%), CO_2 (-9%)
- *Grassland* CH_4 (1%), CO_2 (4%), N_2O (-53%)
- *Wetlands* CH_4 (1%), CO_2 (-19%), N_2O (22%)

⇒ Total emissions from this source reached 18.648 kt CO_2 equivalent:
mostly organic soils (mainly reported by UK, FI, SE and Iceland)

Voluntary reporting under KP:

- only UK announced reporting for Wetland Drainage and Rewetting (data not yet provided)

+/- CO_2 removals / CH_4 emissions
+ Ecosystem restoration

Peatland

Organic soils/peat in ecosystem assessments

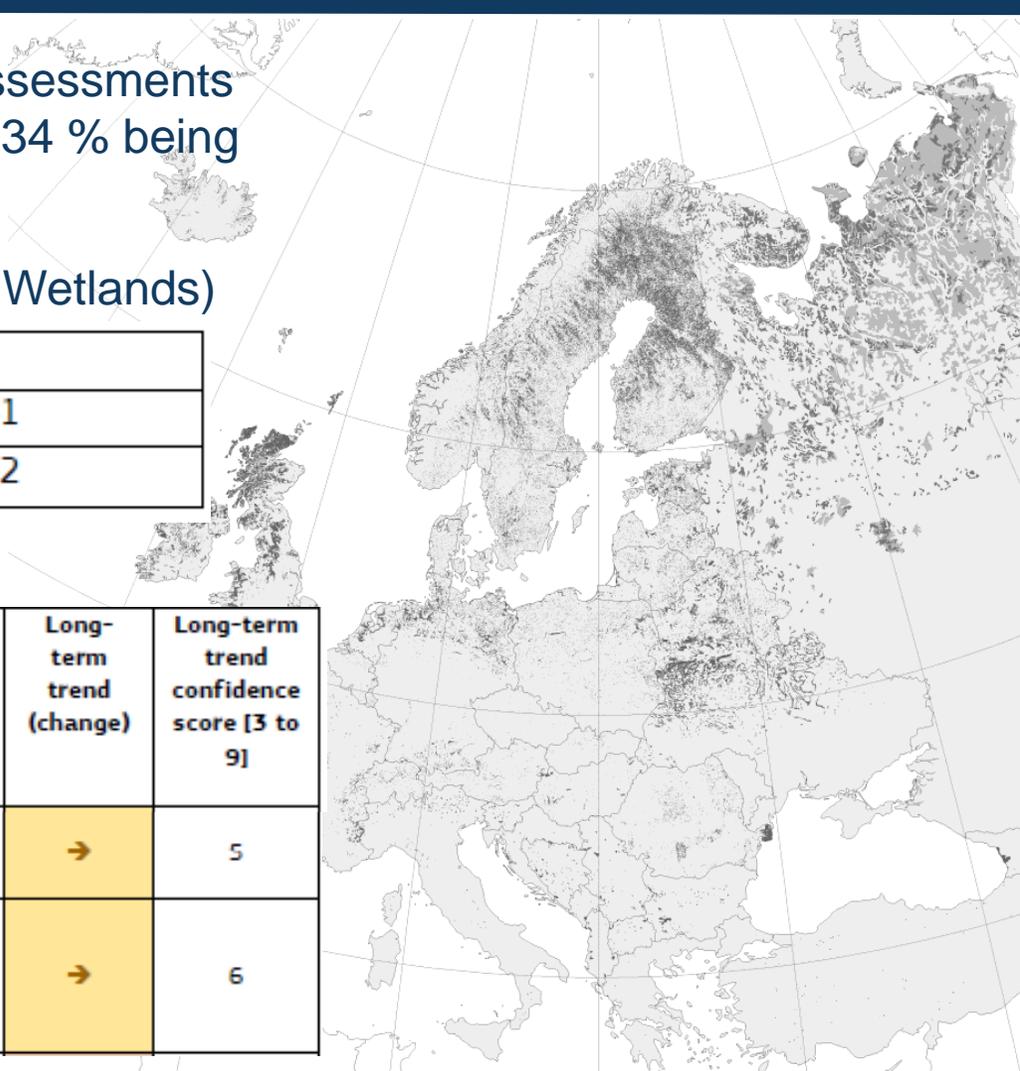
“Under Habitat Directive reporting, more than half (51 %) of the 61 assessments for inland wetland habitats were classified as unfavourable-bad, with 34 % being unfavourable-inadequate, and just 13 % favourable” (MAES 2016)

Habitat extend of inland peatbogs (89%) and marshes (11%) (MAES Wetlands)

Wetland class	2000	2006	2012	2018
Inland marshes	10,593	10,611	10,704	10,641
Peatbogs	87,859	87,388	87,403	87,362

MAES indicators

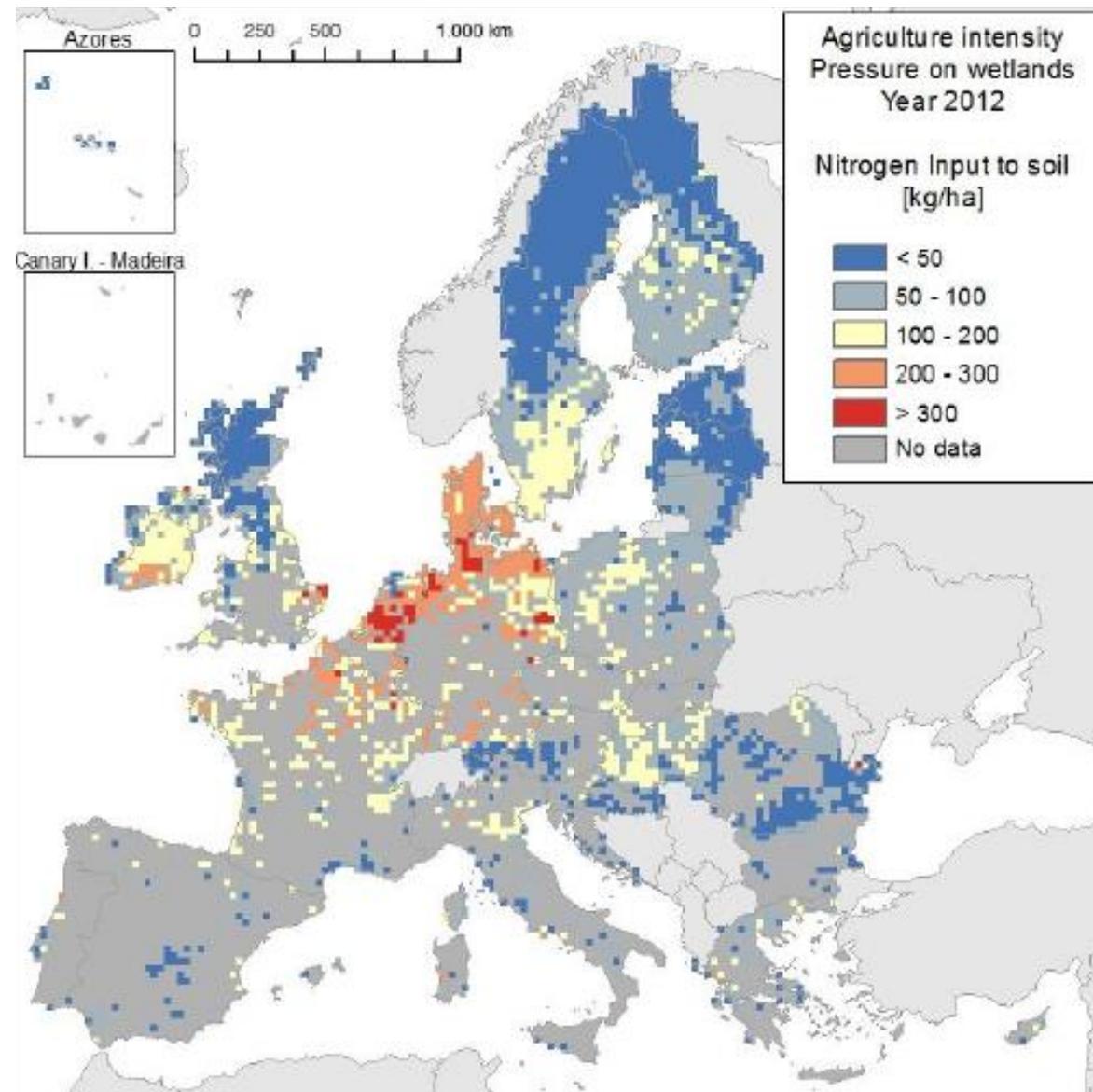
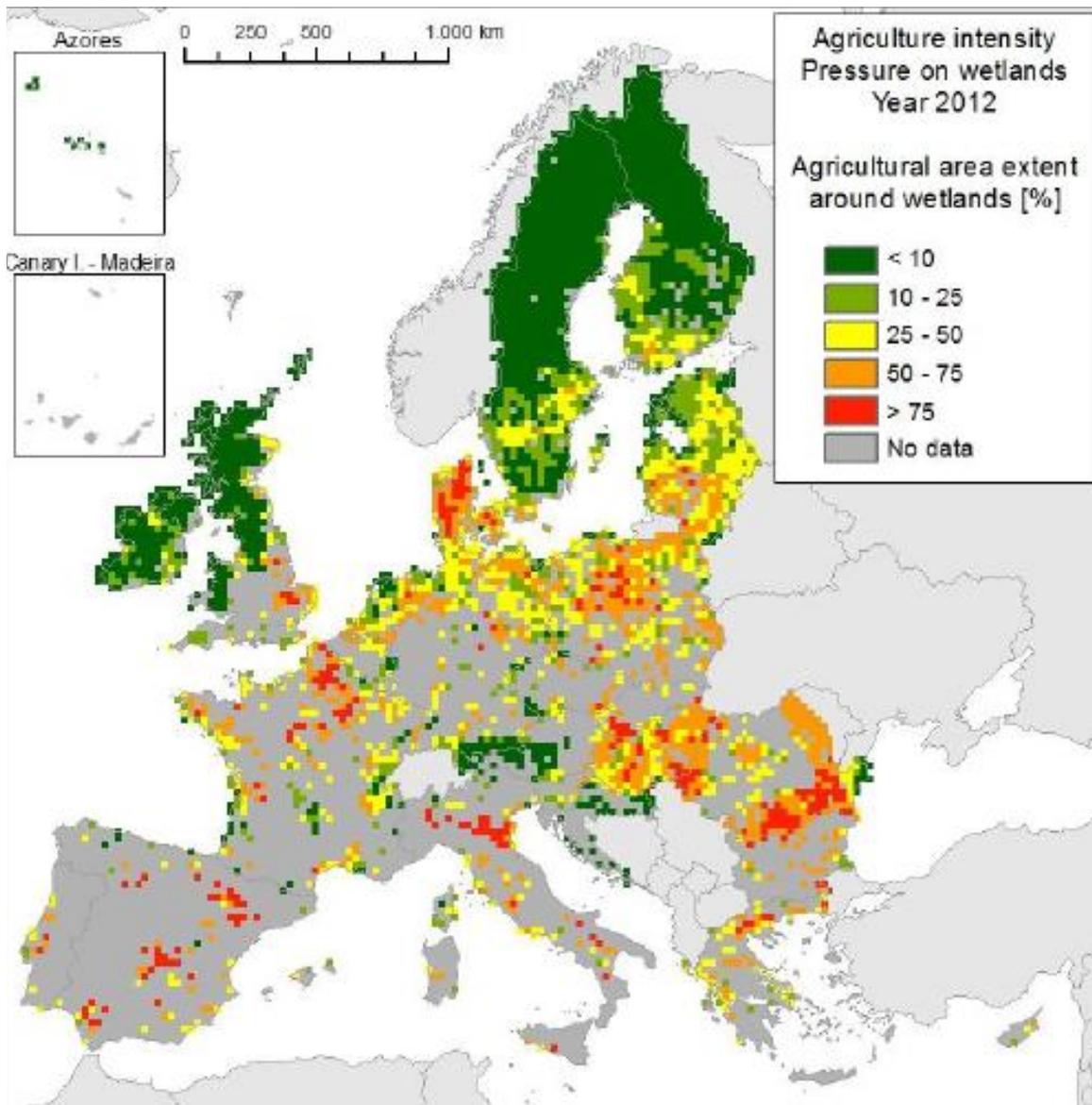
Pressure class	Indicator	Unit	Baseline value (value in 2010)	Short-term trend (% per decade)	Short-term trend (change)	Short-term trend confidence score [3 to 9]	Long-term trend (% per decade)	Long-term trend (change)	Long-term trend confidence score [3 to 9]
Over-exploitation	Agriculture intensity pressure on wetlands: Nitrogen inputs to soil	Kg / ha / year	31.3		unresolved		2.09	→	5
	Agriculture intensity pressure on wetlands: extent of agricultural area around inland marshes and peatbogs	%	8	-0.13	→	5	-2.26	→	6



Pressure on wetlands from agricultural intensification

Pressure on wetlands from N Inputs

Abdul-Malak et al. 2020 (MAES – Wetlands) using an extended wetland layer



Carbon Farming Practices

Representation in EU-wide data sets

- **Challenge:** representation of practices in available land use statistics and spatial assessments (link between land cover monitoring and land use)
- **Needed:** clear definitions of practices (current statistics/data sources include only few agroforestry/wetland management practices, inconsistently applied)
- **Improvement:** monitoring + stratification
- **Integration** of spatial data sets in high resolution (COPERNICUS, national and regional land use statistics, **in-situ monitoring** such as LUCAS, LPIS, biogeochemical models, climate data) ⇒ improves Europe-wide assessments