

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

(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)

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

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 |

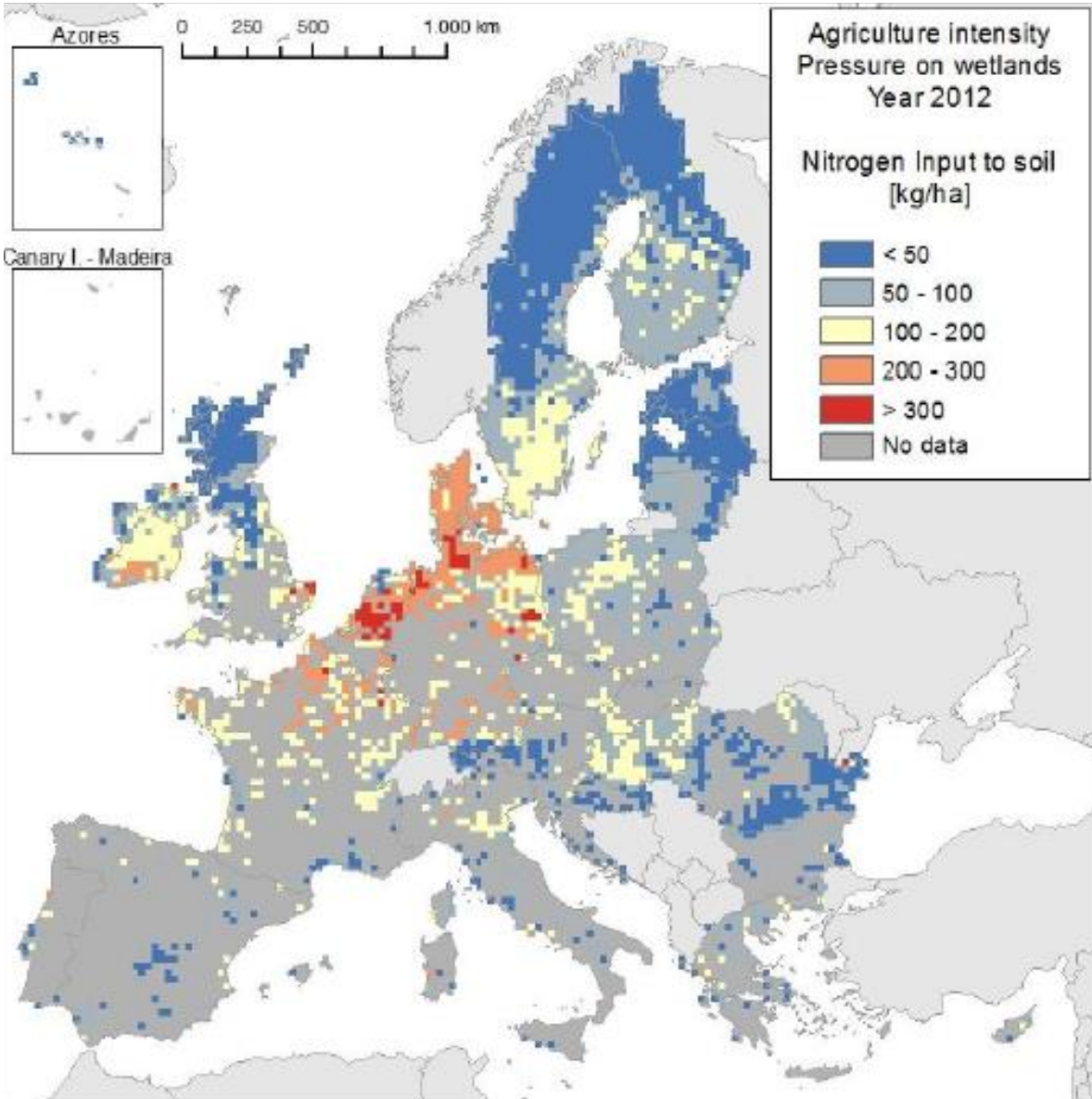
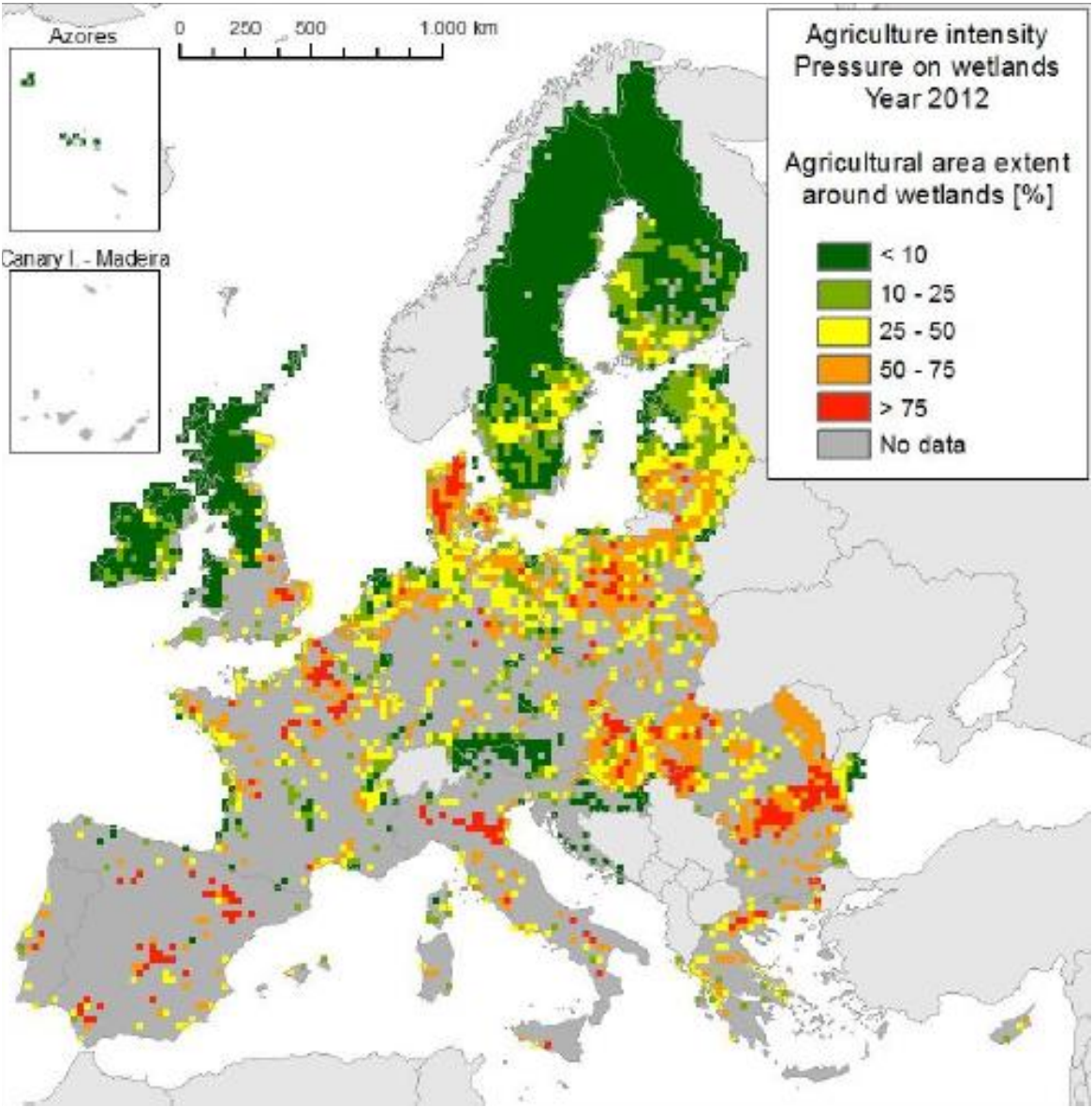
MAES indicators

| 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