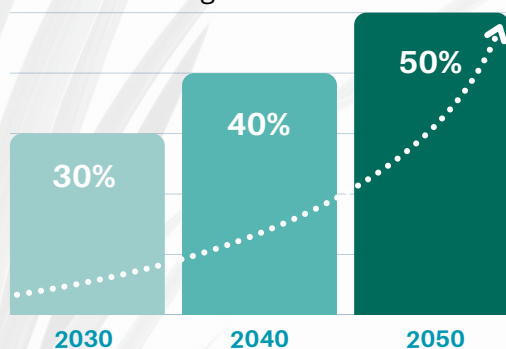June 2025

ACCELERATING WETLAND RESTORATION DESPITE KNOWLEDGE GAPS

Wetlands are vital for supporting biodiversity, reducing flood risks, and storing carbon to help fight climate change. Despite their **crucial role,** wetlands across Europe are widely degraded. Proactive restoration efforts are essential to revive wetland ecosystems and restore their natural functions. The **EU Nature Restoration Regulation (NRR)** provides strong political momentum and establishes legally binding targets for restoring degraded ecosystems, including wetlands and drained agricultural peatlands. It sets out to restore 30% of drained peatlands by 2030 (at least 25% rewetted), 40% by 2040 (33% rewetted), and 50% by 2050 (33% rewetted).

At the same time, wetland restoration efforts **risk being delayed** due to perceived knowledge gaps. These gaps relate particularly to how the NRR will be implemented across Member States, and the formulation of National Restoration Plans. By August 2026, Member States are required to submit their National Restoration Plans, detailing how they will meet the 2030, 2040, and 2050 targets. This marks the official start of national-level implementation. A key challenge in this process is to identify the most valuable wetlands for biodiversity and the wetlands with the greatest potential for carbon sequestration - information that is not always readily available to policymakers.[1] Robust evidence is undeniably important to guide effective political decision-making. But an overreliance on complete knowledge risks **becoming an excuse for political inaction** - further stalling urgently needed restoration to meet the 2030 targets on time.

THE VENICE LAGOON: DELIBERATE WETLAND RESTORATION DESPITE UNCERTAINTY

In the Venice Lagoon in Italy, concerted action for wetland restoration was taken to counteract coastal erosion and habitat loss. Despite uncertainties around carbon sequestration potential and ecological responses, strong political will drove these interventions. Collaborative actions helped reduce environmental degradation caused by excessive nitrogen inputs, which triggered harmful macroalgal blooms impacting local fisheries and tourism. The regional government supported programs that combined research with practical measures. Transversal expert groups - comprising engineers, biologists, and ecologists - reshaped canals and established riparian wetlands. This experience highlights how well-supported, interdisciplinary collaboration - even amid knowledge gaps - can successfully advance wetland restoration.[2]

EU-wide target: Restore degraded ecosystems, including wetlands

[1] https://www.giz.de/en/downloads/giz2020-en-locking-carbon-wetlands.pdf
[2] https://www.mdpi.com/2071-1050/16/20/8835

DATA NEEDS AND GAPS

A **wide range of data is needed** to envision effective peatland restoration under the NRR. This includes data on peatlands status, hydrology, soil properties, biodiversity, greenhouse house gas emissions (GHG), socioeconomics, as well as information on monitoring, evaluation and restoration practices. However, several knowledge gaps challenge the implementation of the NRR. Key gaps relate to **inconsistent definitions of peatlands, fragmented data on GHG emissions, and the absence of a centralized database that enables long-term monitoring and knowledge sharing.[3]** Inconsistent peatland definitions affect national and continental inventories, leading to inaccurate estimates of peatland coverage, volume, and carbon content, and complicating restoration planning and carbon stock assessment. Fragmented data on peatlands and GHG challenge the assessment of the current condition of peatlands as well as their potential for recovery, which hinders a holistic assessment of the climate benefits of rewetting.

The absence of a centralized database limits the ability to draw on consolidated data for large-scale political decision-making and the monitoring of restoration targets. The lack of consolidated data also hampers restoration planning and coordination between Member States, as well as the assessment of sustainable restoration measures allowing for adaptive management.

RECOMMENDATION: ADVANCING RESTORATION, CLOSING KNOWLEDGE GAPS

While the various knowledge gaps regarding the implementation of the NRR must be addressed, they should not serve as a pretext for inaction. Immediate restoration action is needed to protect vital wetland ecosystems. A two-fold approach can simultaneously **advance restoration targets and systematically close knowledge gaps.** First, adaptive policymaking allows restoration strategies to evolve alongside emerging knowledge, helping decision-makers navigate uncertainty. Second, deliberate efforts to address knowledge gaps strengthen the evidence base for wetland restoration over time.

EVOLVE WETLAND RESTORATION WITH EMERGING KNOWLEDGE

- Wetland restoration needs to be approached as a long-term procedural process; not as a one-off technical intervention. That way, restoration efforts can co-evolve with the most recent information and adapt to emerging challenges.
- Iterative feedback loops enhance evidence-based policymaking. Institutionalized monitoring, evaluation, and learning systems are key enablers.
- Sharing and synthesizing knowledge and good practices across contexts helps policymakers tackle knowledge gaps.
- Transparent decision-making invites input from experts and key stakeholders amid uncertainty. Collaborative initiatives such as the Wetlands Multi-Stakeholder Platform bring together concerned actors whilst assuring that restoration policies are contextually grounded.

CLOSE KNOWLEDGE GAPS DELIBERATELY

- A deliberate and long-term approach to closing knowledge gaps – supported by increased funding - helps build a solid foundation for wetland restoration. Such evidence enables the assessment of restoration progress.
- Standardized definitions of wetlands, including peatlands, and coherent mapping methodologies such as the European Wetland Map ensure consistency between Member States.
- Integrated data platforms such as Wetset ensure the coordinated and transparent collection, sharing, and application of data across regions, and facilitate better restoration planning.
- Strengthening knowledge networks and training wetland experts fosters innovation and speeds up the exchange of good practices. This ensures the long-term success of restoration initiatives.

[3] Wetlands International. (2025). First identification and filling of information gaps through participatory research actions [Internal REWET document]. Unpublished/ internal communication.

SOMERSET LEVELS AND MOORS: ADAPTIVE RESTORATION PRACTICE

Established in 2009, the IUCN UK Peatland Programme aims to prevent peatland loss, promote restoration across the UK, and highlight the multiple benefits of healthy peatlands. It operates through partnerships, robust scientific evidence, informed policy making, and effective restoration practice. The programme's long-term vision is for peatlands to function as fully restored ecosystems, playing a key role in climate change mitigation.[4]
As part of the programme, a project focused on the Somerset Levels and Moors takes an adaptive approach to peatland restoration, addressing knowledge gaps and uncertainties through a stepwise process. By testing and refining methods for flood risk, water quality, and rewetting, the project allows for ongoing adjustments while aligning ecological goals with agricultural needs. It brings together a wide range of actors, including farmers, conservation NGOs, government agencies, and researchers, to co-develop practical, locally tailored restoration solutions.[5]

THE NATURE RESERVE PAUL DA GOUCHA: COMMUNITY-DRIVEN RESTORATION DESPITE KNOWLEDGE GAPS

The restoration of the Paul da Goucha site, a tributary of the Tagus River in Portugal, illustrates how wetland restoration can begin despite a lack of data and improve over time as knowledge evolves. Over 20 years ago, restoration efforts started at a sand extraction site, heavily polluted with debris. These efforts gradually gained support from policymakers and local communities. Landowners increasingly recognized the environmental benefits, and public support grew through community-led education. This progress led to the site's designation as a local nature reserve, demonstrating that waiting for complete data should not delay restoration action. More recently, another peatland area at the site is being restored. New data from the REWET Open Lab provides insights into GHG emissions linked to unstable water levels in the area and enables better-informed restoration efforts.

CALL TO ACTION: RESTORE WETLANDS NOW

The benefits of wetland restoration are well known, and the risks of continuing with the status quo are widely recognized. Rewetting represents a **no-regret intervention** for long-term environmental security, as it enhances wetland conditions and generates wider ecological and climate benefits. The NRR offers a legal framework with clear targets to support the restoration of degraded wetlands across Europe. Achieving these targets should not be further postponed. We must shift from a mindset of "we do not know enough to act" to "we know enough to begin." **Knowledge gaps are no excuse for further delaying restoration.** A two-fold approach that advances restoration while addressing existing knowledge gaps can drive progress on both fronts.

[4] https://iucn-nc.uk/projects/iucn-uk-peatland-programme/
[5] https://www.iucn-uk-peatlandprogramme.org/projects/somerset-rebuilding-ecological-network?destination=/projects-map%3Fsearch%3Dsomerset

RESOURCES

- Wetset offers datasets that can support ecosystem monitoring and restoration planning: https://wetset.idener.ai/
- Multistakeholder platform brings together diverse actors to exchange ideas, good practices, and resources: https://www.stakeholders.rewet-he.eu/
- European wetland map can help address knowledge gaps: https://zenodo.org/records/14717561

ABOUT REWET

REWET is a laboratory for the restoration of wetlands at European scale. In the REWET project, funded by the European Union, NGOs, universities, companies and institutions joined forces to study the full potential of wetland areas. With information from seven open laboratories, we are developing a comprehensive understanding of how European wetlands can best contribute to climate mitigation and adaptation. Would you like to learn more?

- Visit the REWET website
- Or contact Caspar Verwer

Funded by the European Union