



Restoring Riverine and Coastal Wetlands in Europe

Scaling Up Action for Biodiversity and Climate



Vjosa River, Albania (© Christian Hecht)

Key Messages

- Riverine and coastal wetlands offer us a wide range of ecological, social and economic benefits, including essential contributions to our response to climate change. They are among the most biodiverse, dynamic and productive ecosystems in Europe, but also among the most threatened.
- About 80% of European wetlands have already disappeared in the last 100 years. The remainder is largely degraded due to human pressures and highly vulnerable to climate change.
- To preserve this vital part of our natural life support system, there is an urgent need to protect the few healthy wetlands that remain and to significantly scale up wetland restoration across Europe.
- Understanding that climate change will impact wetland biodiversity and natural functions is key for effective long-term restoration and conservation planning.
- To facilitate informed decision-making, it is crucial to better integrate science, policy and practice, and to exchange lessons-learned from across Europe.
- Policy-makers play a key role in making wetlands a political priority, and to mainstream their conservation and restoration across all sectors. This includes policy action to reduce human pressures, set binding restoration targets and substantially increase funding and capacities for wetland action.
- To scale up implementation in practice, an early integration of local communities, land users and further stakeholders is essential.
- There is a solid scientific evidence base available to guide action. We can - and must - act on what is known.

Why do riverine and coastal wetlands matter?

Wetlands are vital ecosystems for nature and people. Riverine and coastal wetlands in Europe are hotspots for biodiversity and provide crucial nature-based solutions for mitigating and adapting to climate change.

As natural sponges, they regulate the landscape water balance and mitigate floods and droughts. During extreme events, river floodplains provide natural water retention areas while coastal wetlands alleviate wave energy, thus reducing risks to human lives and property and improving water resilience. Conserving and restoring carbon-rich wetlands such as floodplain forests, coastal or riverine peatlands, saltmarshes and seagrass meadows also help us mitigate climate change itself.

Moreover, healthy and naturally-functioning wetlands provide countless further contributions to human health and well-being, including food provision, water filtration, nutrient cycling, opportunities for recreation and nature tourism and many other co-benefits. These key ecosystem services underpin environmental and socio-economic systems at many spatial scales - making wetlands essential for delivering the European Green Deal and global biodiversity, climate and sustainable development targets.

Yet these valuable ecosystems are also among the most vulnerable in Europe (and the world). Climate change and associated changes in the hydrological cycle will cause severe losses of wetland habitats and species. The scale and severity of the challenge we face must not be underestimated.

We are already losing these vital ecosystems at an alarming rate. About 80% of the European wetlands that existed 100 years ago have been lost, and 89% of the remaining wetland habitats protected under EU law show an unfavourable conservation status¹. Wetlands are especially vulnerable to combined human and climatic pressures. Among human pressures, hydrological and hydromorphological changes are most

critical, including drainage, dams and water abstraction, followed by unsustainable land use and eutrophication or other pollution. This degradation further diminishes their chances to survive in a changing climate.

We therefore face an **urgent need to ensure the protection of remaining intact wetlands and to significantly scale up restoration of degraded wetlands** across Europe. This requires reducing human pressures, restoring natural dynamics, increasing water retention in the landscape, reconnecting floodplains and providing space for coastal wetlands to expand.

It is estimated that each Euro invested in ecosystem restoration in the EU generates 8 to 38 Euros of economic benefits² in form of natural capital or ecosystem services. Wetland restoration can be especially cost-effective in the long term, since many measures (such as dam removal, rewetting etc.) are self-sustaining after an initial investment. The costs of inaction, on the other hand, are ever increasing.

The following chapters summarise key recommendations for scaling up and accelerating the restoration of riverine and coastal wetlands in Europe, developed by and for policy-makers, practitioners and scientists.

These **ENCA Recommendations** summarise key findings of the 5th European Conference on Biodiversity and Climate Change “**Riverine and Coastal Wetlands for Biodiversity and Climate – Linking Science Policy and Practice**”, hosted by the German Federal Agency for Nature Conservation (BfN) and the European Network of Heads of Nature Conservation Agencies (ENCA) and held on 26th - 28th September 2023 in Bonn, Germany.

¹ EEA Biodiversity Information System: <https://biodiversity.europa.eu/europes-biodiversity/habitats-to-be-restored/wetlands>

² EU Commission (Nature Restoration Law Impact Assessment): https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-law_en

Enabling action through policy changes

Policy-makers at all levels have a key role to play in order to accelerate action for protecting and restoring riverine and coastal wetlands in Europe.

- **Make wetlands a political priority.** Raise awareness for their great natural and socioeconomic value, in the policy arena as well as the wider public.
- **Strengthen synergies across policy sectors.** Recognize and promote the contributions of wetland restoration to a wide range of policy objectives, e.g. international, regional (EU) and national targets on biodiversity, climate change, water quality and freshwater supply, disaster risk reduction, food security, health, land degradation neutrality etc., including the Sustainable Development Goals, the Global Biodiversity Framework, the Paris Agreement, the Ramsar Convention, the EU Green Deal, the Water Framework and Nature Directives and the upcoming EU Nature Restoration Law. Implement and enforce existing policies ambitiously and effectively.
- **Recognize trade-offs and improve cross-sectoral policy coherence.** Renegotiate policies that currently contribute to wetland degradation, with special attention to agriculture (including the EU Common Agricultural Policy), forestry, fishery, renewable energies (including hydropower), coastal protection, tourism and infrastructure development. Phase out harmful subsidies and redirect them into nature-positive investments.
- **Provide incentives for shifts towards more sustainable land use** in wetlands and their catchments, e.g. by developing ecologically effective agri-environmental schemes and/or establishing payments for wetland ecosystem services. Engage land users and other stakeholders directly and develop joint and adaptive solutions for a just transition. In the long term, develop suitable policy

instruments to truly integrate land use planning across all sectors.

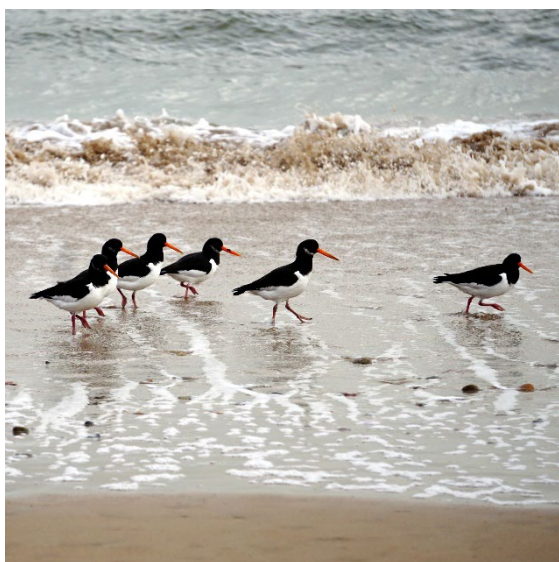
- **Promote nature-based solutions (NbS) for biodiversity and climate.** Integrate wetland NbS, for example, into National Biodiversity Strategies and Action Plans, Nationally Determined Contributions and National Adaptation Plans. Set strong ecological and social safeguards for all NbS, including strict criteria for carbon removal certification.
- **Promote coastal NbS.** Develop long-term strategic regional “masterplans” for coastal management, taking future climate change scenarios into account. Recognize that it’s not feasible to protect every coast with hard defences. Support coastal wetland restoration over increasing areas and promote managed realignment as a long-term solution.
- **Develop legally binding instruments for scaling up ecosystem restoration,** with ambitious and measurable targets on wetland restoration, precise time-scales, robust monitoring and evaluation criteria and sufficient funding. EU member states should ensure a fast and effective implementation of the upcoming EU Nature Restoration Law with ambitious National Restoration Plans, under-



Healthy wetlands offer nature-based solutions for managing floods and droughts.
(Above: © S. Wulf, Below: © M. Scholz)

pinned by a significant increase of available capacities and resources. Non-EU member states should follow an equally ambitious approach in implementing global nature restoration targets.

- **Oblige businesses to assess and mitigate their impacts on nature.** Create legal obligations for mitigation and, as last resort, compensation of unavoidable impacts through ecosystem restoration, while enforcing meaningful biodiversity standards (permanency etc.).
- **Mobilize private funding at scale** for wetland restoration. Develop a portfolio of projects and programmes and exemplify suitable business models for private sector investments. Set meaningful biodiversity criteria to prevent greenwashing, ensuring additionality and permanency. Ensure especially that all wetland carbon schemes are ecologically sound.
- **Significantly increase public funding** for wetland restoration. Ensure long-term availability of funds for restoration projects, including for monitoring and evaluation. Improve accessibility of funds for local actors and increase flexibility to facilitate adaptive management.



Riverine and coastal wetlands are hotspots of biological diversity. (© S. Wulf)

Scaling up wetland restoration in practice

Wetland restoration pilot projects all over Europe are already demonstrating success. Here is what we can learn from practice to scale up implementation:

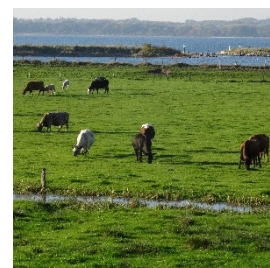
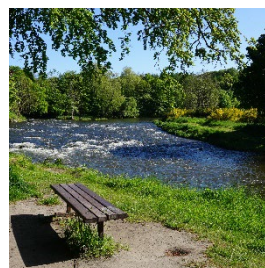
- **Think long-term.** Take future climate change impacts and uncertainties into account when planning wetland management and restoration. Recognize that we will face severe climatic, hydrological and ecological changes. Be adaptive and embrace new dynamics.
- **Think source-to-sea.** Use a systemic, integrative approach at appropriately scales, e.g. whole catchment level or landscape scale. Develop mechanisms for cross-border and cross-sector cooperation and establish joint conservation initiatives and agreements.
- **Advance step by step.** Be ambitious in your strategic long-term vision and help develop portfolios of projects, but start with low-hanging fruits, to showcase success and generate momentum.
- **Demonstrate benefits.** Assess and widely communicate the multiple socio-economic benefits of wetland restoration (including guided visits to demonstration sites). Show long-term costs and benefits of wetland NbS compared to true costs of “grey” alternatives (e.g. floodplain restoration vs. dike maintenance).
- **Enhance capacities for wetland restoration,** e.g. by investing in training programs to develop skilled personnel for planning and implementation, including for government agencies, NGOs and local communities.
- **Make people part of the process.** Engage local communities as early as possible in the project planning phase, this is key to success. Integrate local knowledge, build ownership, mitigate trade-offs and develop joint solutions for maximizing co-benefits together. Allocate sufficient resources (time,

personnel and money) for co-design processes.

- **Bring all relevant stakeholders together**, including land users as well as actors dealing with nature conservation, climate change, water, flood protection, tourism and local governments. Use well-tailored channels and formats to foster dialogues and, where appropriate, build on existing structures and mechanisms (e.g. integrated river basin management). Break silos and seize opportunities to win new allies (e.g. banks, insurers, water utilities, schools etc.).
- **Build a business case for private land owners**. Demonstrate opportunities for generating income from wetland restoration through sustainable wet land use options (including effective agri-environment measures), carbon removal certificates, nature tourism etc., while still ensuring biodiversity benefits.
- **Build long-term local partnerships**, recognize contributions and build trust, i.a. to ensure acceptance and long-term maintenance of measures.
- **Protect healthy and naturally functional wetlands** that can withstand climate change, recognizing that it is always easier to conserve what is left than to restore what is lost.
- **Restore free-flowing rivers**. Define, identify and remove (obsolete) barriers, prioritizing biodiversity gains, e.g. by restoring lateral and longitudinal connectivity in large river stretches with contact to the sea. Modify barriers that cannot be removed to enable fish passage.
- **Reconnect river floodplains**. Promote large-scale projects as “blue-green infrastructure development” and prioritize them in regional land use planning.
- **Restore coastal dynamics**. Realign defence structures that are too costly to maintain, to recreate accommodation space for coastal wetlands. Restore sediment fluxes to boost the capacity of coastal habitats to cope with sea level

rise. Combine engineered and nature-based solutions where suitable (hybrid approach, greening the grey).

- **Restore urban wetlands**, recognizing that even small projects can yield large benefits. Plan strategically to support wider wetland functionality beyond the settlement.
- **Promote passive restoration where suitable**. Reduce human pressures in the catchment and restore connectivity and natural dynamics. Then, where appropriate, allow nature to take its course.
- **Learn and adapt**. Continuously expand our understanding of systems and contexts, restoration potentials and constraints. Monitor and evaluate restoration success, learn from experience and improve outcomes adaptively.



Reconciling local interests and land uses is key for successful wetland restoration. (© S. Wulf)



Effective restoration planning requires a close understanding of the targeted wetland system. (© C. Seele-Dilbat)

Expanding the evidence base & informing decisions

There is an ever-growing knowledge base throughout Europe to guide and support the restoration of riverine and coastal wetlands, from strategic policy decisions to the practical implementation on the ground.

We can act on what is known. The evidence base is sound: Wetland nature-based solutions provide no-regret options for long-term sustainable management of river basins and coasts, even in a changing climate. To halt the rapid wetland loss in Europe and preserve their valuable services, we must not let residual uncertainties stall action - the costs of inaction are higher.

The following recommendations and research priorities aim to further improve the availability, uptake and impact of wetland science:

- **Integration is key.** Combine social and natural science, local knowledge, riverine and coastal research, climate and biodiversity science, policy needs, lessons learned from practice etc. to develop well-integrated recommendations.
- **Refine models of future climate change impacts.** How will the landscape water balance be affected? Which hydrological, morphological and ecological changes are expected? Improve our context-specific understanding of the threats to wetland systems. Build scenarios and models for all relevant scales.
- **Reassess nature conservation priorities.** How will species ranges shift? Which losses of wetland habitats and species might be inevitable? How should wetland management respond?
- **Close knowledge gaps** on the biodiversity benefits of specific wetland restoration methods, and better quantify their climate benefits (greenhouse gas fluxes, long-term carbon storage, water storage (drought buffer), flood protection, etc.).
- **Build further evidence on the socio-economic benefits** of wetland restoration. Better quantify adaptation benefits (flood risk reduction, coastal protection etc.) as well as further regulating, provisioning and cultural ecosystem services. Critically assess the long-term viability of “grey” business models under climate change and promote green alternatives.
- **Improve understanding of socio-economic barriers** to wetland restoration, including trade-offs and disservices.
- **Identify priority areas** for wetland restoration, based on an integrated assessment of restoration needs and potentials as well as feasibility, co-benefits, etc.
- **Improve monitoring of restoration outcomes.** Provide a comprehensive set of standardized indicators, suitable for various scales and contexts. Complement professional monitoring with citizen science where relevant. Develop a functional data infrastructure and improve data comparability in Europe.
- **Enhance data accessibility.** Develop digital platforms to present information on restoration outcomes transparently (on easily accessible maps and dashboards etc.), e.g. to allow civil society to track their government's compliance with international restoration targets.
- **Communicate results effectively,** avoid jargon and tailor all science-based recommendations to target audience(s).



How will highly dynamic river systems be impacted by climate change? (© M. Scholz)

Strengthening the science-policy-practice interface

Fostering constructive exchange and trans-disciplinary cooperation between scientists, practitioners and policy-makers is key if we are to overcome prevailing barriers to wetland restoration.

- **Policy** provides the targets and implementation framework for restoration action. Policy-makers need to ensure that their decisions are well-aligned with scientific knowledge (taking future climate change scenarios into account) and that they address practical implementation challenges effectively (such as limited land availability and lack of funding). Restoration targets and frameworks need to be further aligned with broader sustainable development actions and cross-sectoral policy coherence must be improved.
- **Practice** refers to the on-the-ground implementation of restoration action, including (adaptive) management decisions. These should be informed by latest research findings and include a monitoring component. Practical implementation must be scaled up significantly to meet wetland-related policy targets.
- **Science** provides the knowledge base for well-informed decisions on all levels. Research should therefore be well-aligned with the prioritised information needs of policy-makers and practitioners. Relevant findings must be easily accessible and should be communicated more effectively.

All three dimensions must work together to halt wetland loss in Europe – to demonstrate the value of riverine and coastal wetlands for people, biodiversity and climate, to reduce human pressures across all land use sectors, to create a business case for wetland restoration, to mobilize significant funding and investments, to operationalize integrated approaches for tackling trade-offs and maximizing co-benefits, and to build the necessary capacities for implementing restoration action at scale.

We must accelerate action now. There is an undeniable urgency to massively scale up the protection and restoration of riverine and coastal wetlands. Their ongoing loss and degradation deprive us of a key component of our natural life support system. We need to reconnect and bend that curve.

It's time for a transformative change for riverine and coastal wetlands in Europe.

Imprint

European Network of Heads of Nature Conservation Agencies (ENCA)



ENCA is an informal network which fosters exchange of information and collaboration amongst its partners, identifies future challenges and offers information and advice to decision-makers in the field of nature conservation and landscape protection.

ENCA brings together scientific evidence and knowledge of practical application as well as experiences in administration and policy advice in the context of biodiversity and ecosystem goods and services.

More details at www.encanetwork.eu

Publication date: November 2023

This publication was prepared by the ENCA Interest Group on Climate Change. It builds on recommendations developed by participants of the BioClim-Wetlands Conference, held by BfN & ENCA in close cooperation with the Helmholtz Centre for Environmental Research (UFZ), the German Centre for Integrative Biodiversity Research (iDiv) and adelphi.

Further reading:

Conference booklet of the BfN-ENCA European Conference “Riverine and Coastal Wetlands for Biodiversity and Climate – Linking Science Policy and Practice” (BioClim-Wetlands): <https://tinyurl.com/bioclim-booklet>

Discussion paper “Riverine and coastal wetlands in Europe for biodiversity and climate”: <https://tinyurl.com/bioclim2023>