

MERLIN

Towards 25,000 km of free-flowing rivers:
**The MERLIN project for mainstreaming
river and wetland restoration in Europe**

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[www. project-merlin.eu](http://www.project-merlin.eu)



The project

→ H2020 Green Deal call
“... respond to climate crisis and help
protect Europe’s unique ecosystems
and biodiversity ...”

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- *Ambition:*
Contributing to societal transformation

Project overview

Task 1: Learning from best-practice

Task 2: Optimizing the existing

Task 3: Exploring hidden potentials

Task 4: Creating conducive conditions

Task 5: Multiplying the change

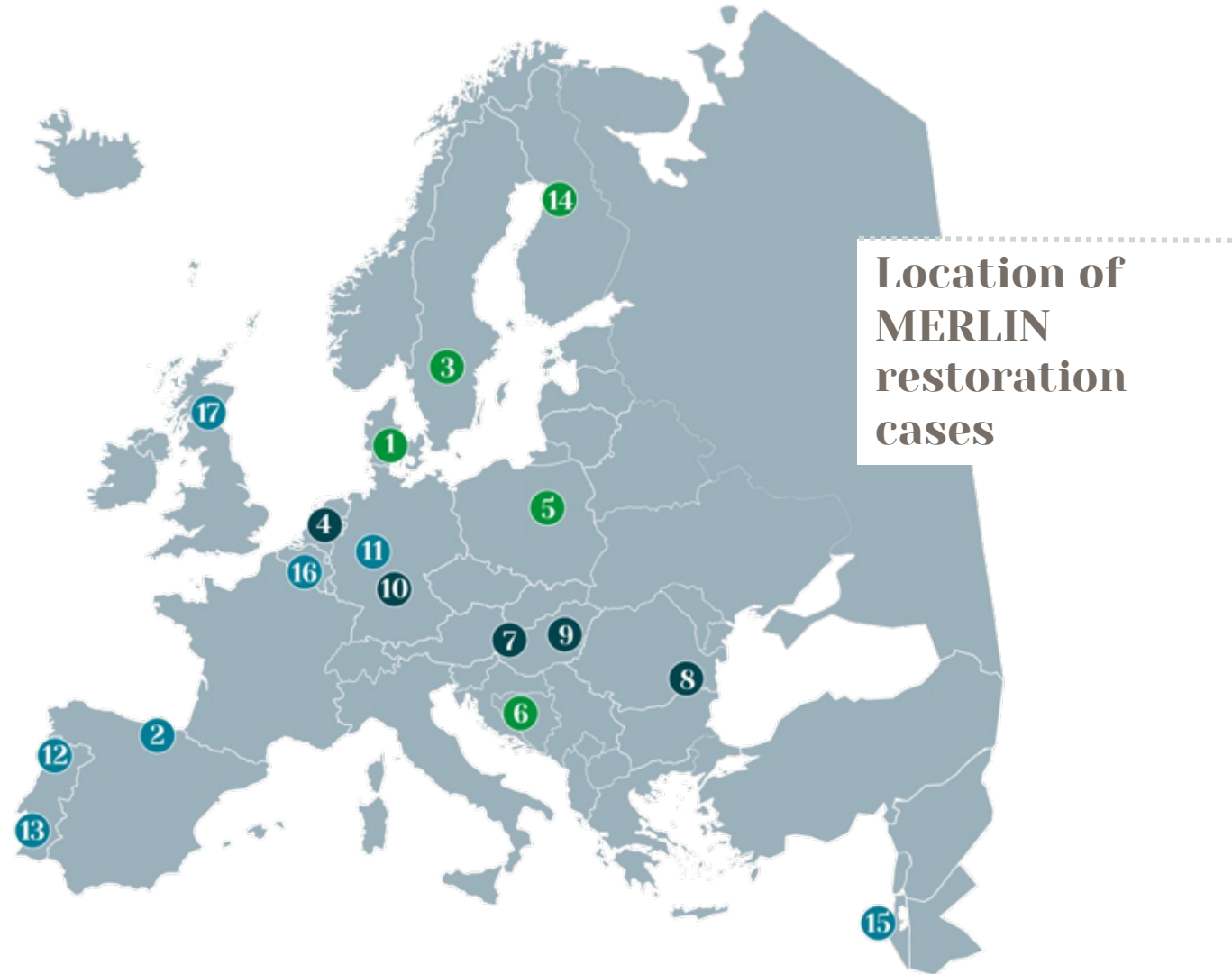
Task 1

Learning from best- practice

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17 restoration case-studies



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Task 1

Learning from best- practice



PEATLANDS
AND WETLANDS



SMALL STREAMS
AND BASINS

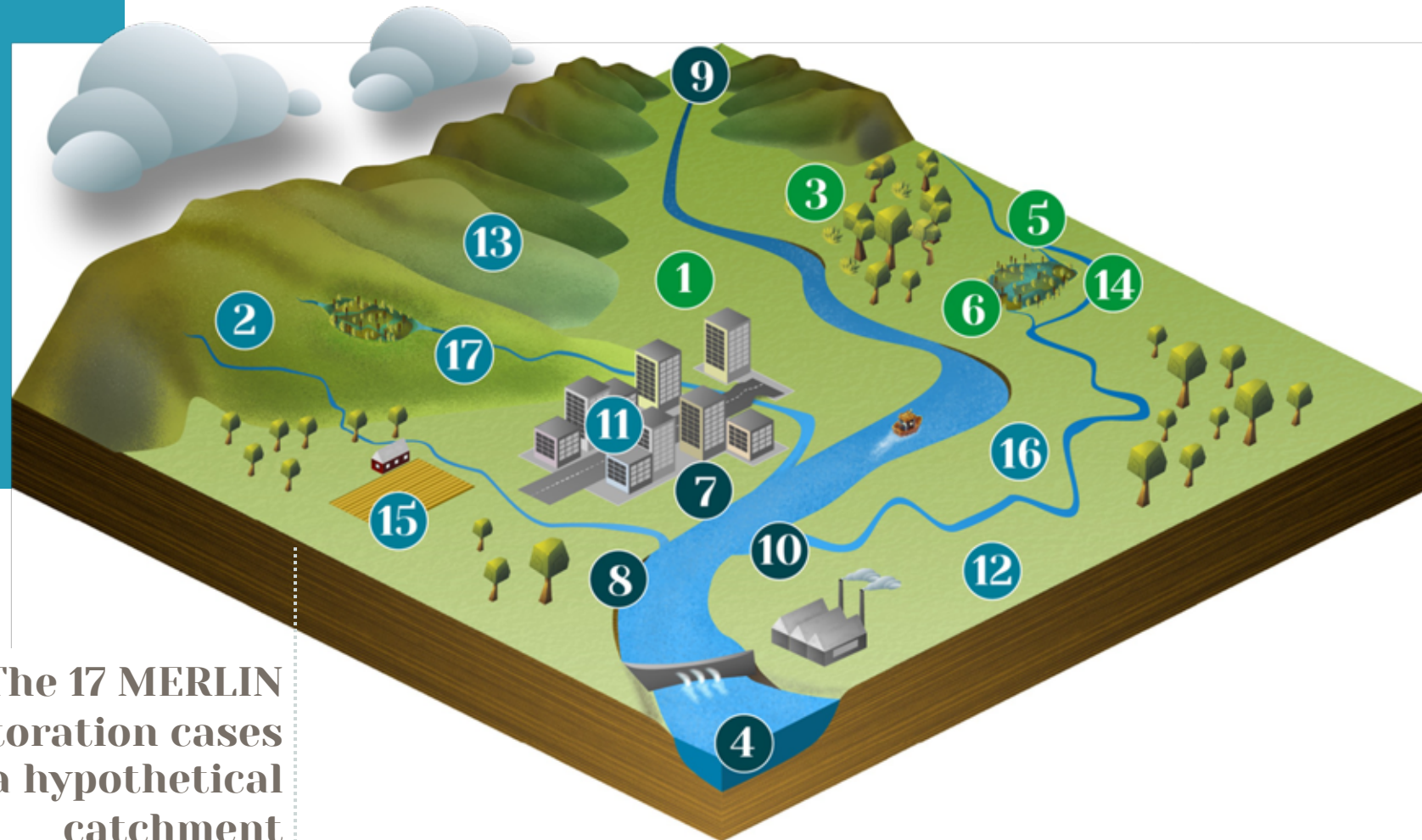


LARGE TRANS-
BOUNDARY
RIVERS

Landscape context

Task 1

Learning from best-practice



The 17 MERLIN restoration cases in a hypothetical catchment

Dam removal in Basque streams

Task 1

Learning from best-practice



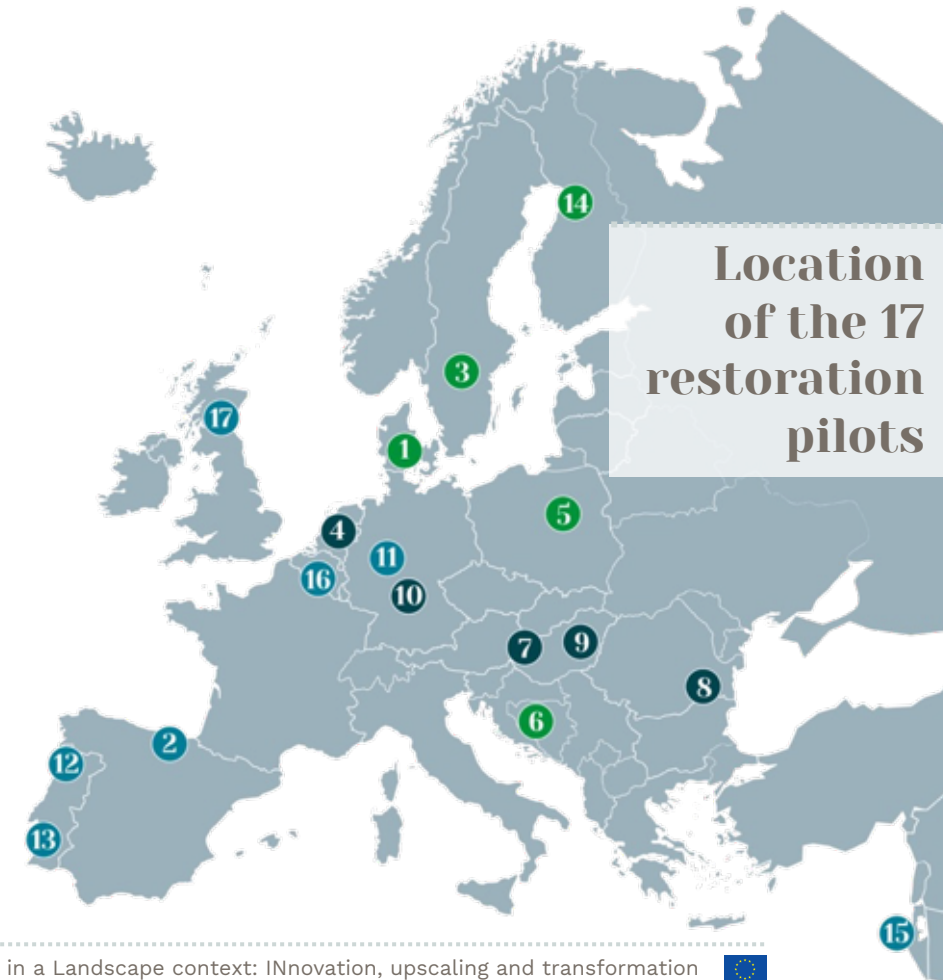
Task 2

Optimizing the existing

Additional measures (examples)

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Optimizing the existing



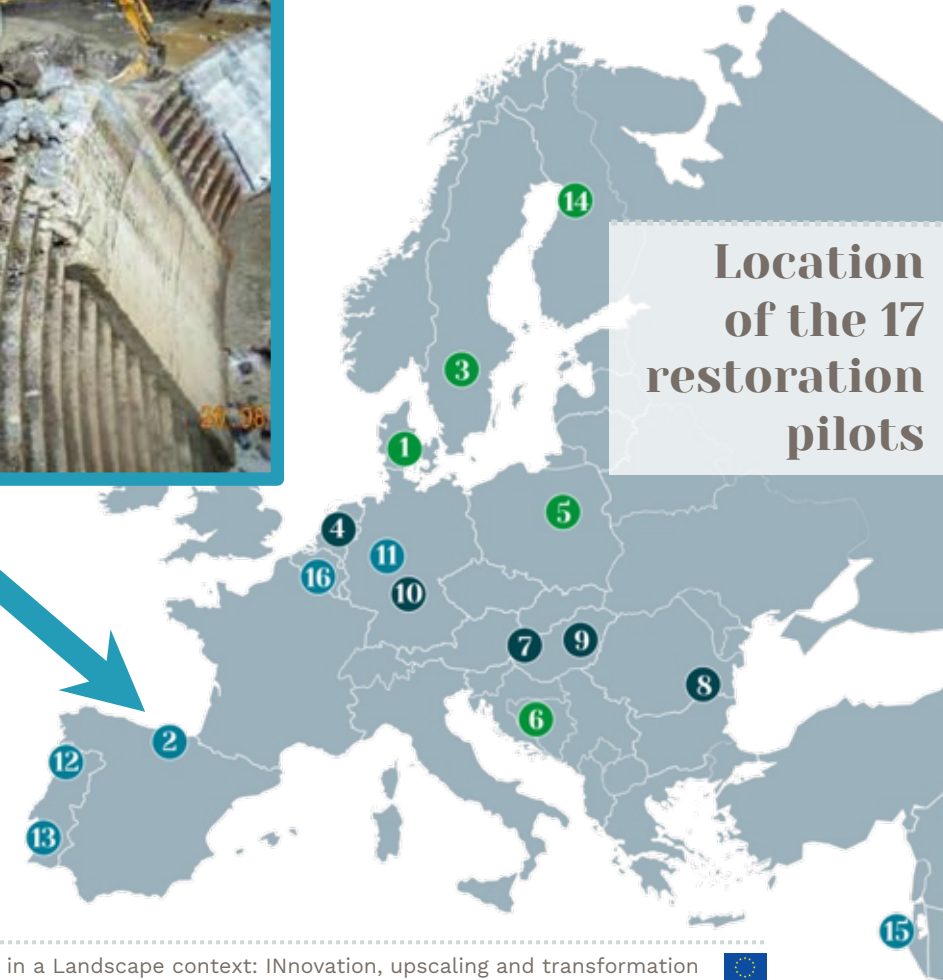
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Additional measures (examples)



Dam removal (ES)



Task 2

Optimizing the existing

Additional measures (examples)



Beaver re-introduction (SE)



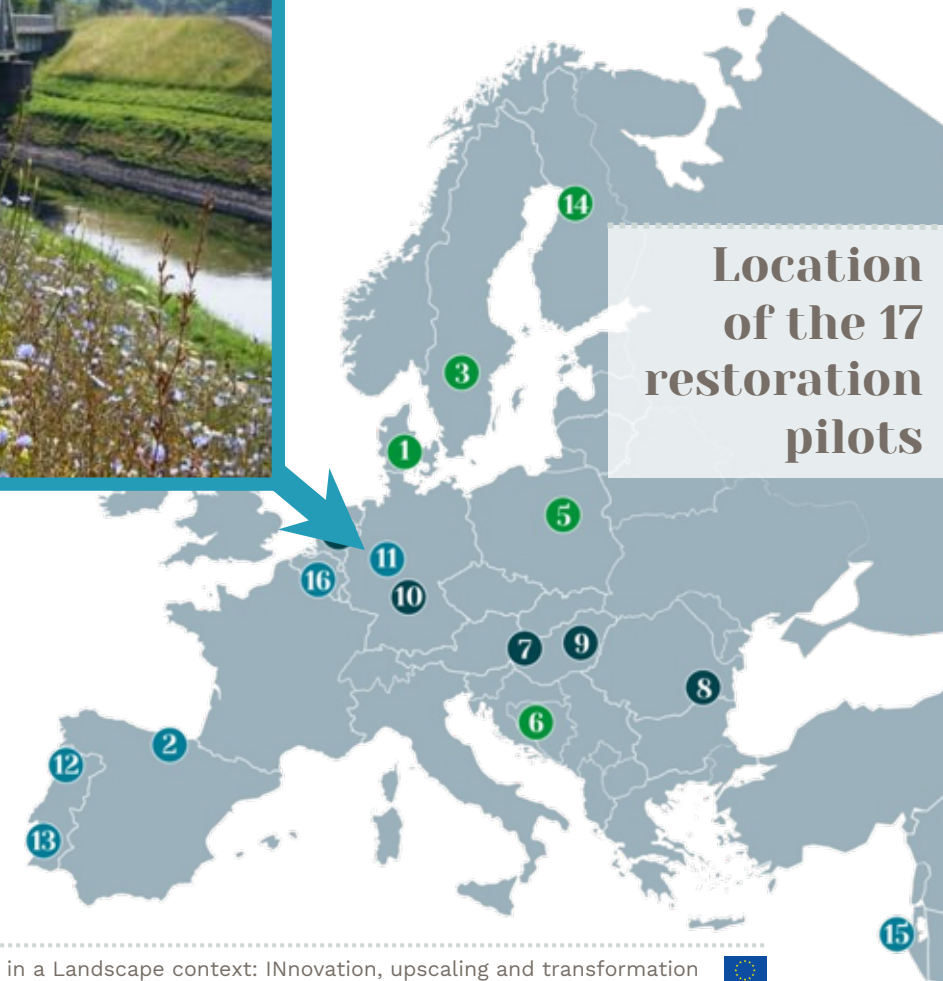
Task 2

Optimizing the existing

Additional measures (examples)



Bio-diverse flower meadows (DE)



Task 2

Optimizing the existing



Global Standard for Nature-based Solutions



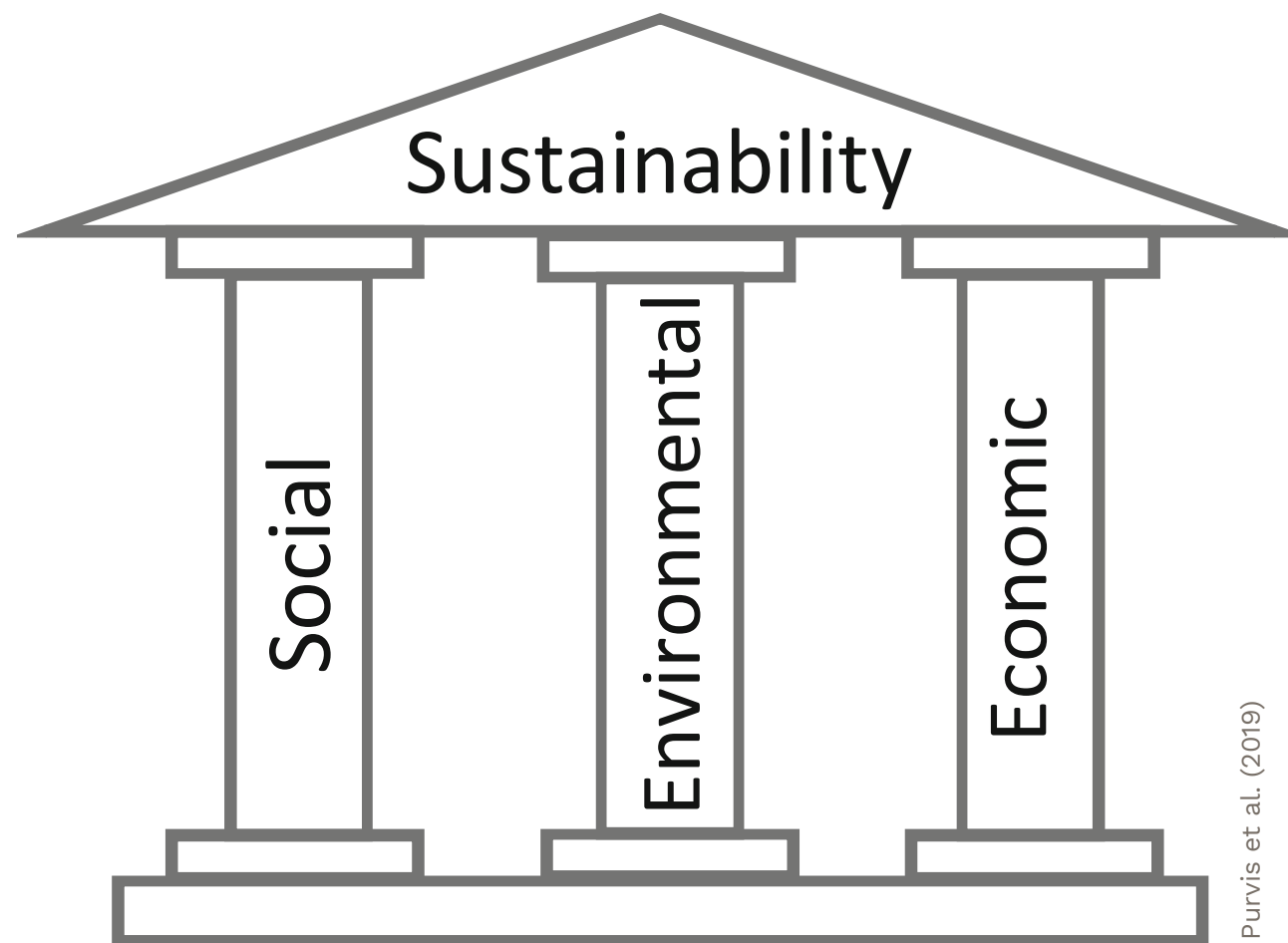
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Global Standard for Nature-based Solutions

Task 2

Optimizing the existing



Purvis et al. (2019)

Task 3

Exploring hidden potentials

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Exploring hidden potentials



Restoration opportunities across Europe

Task 3

Exploring hidden potentials



Restoration opportunities across Europe

Restoration benefits for pilot regions (incl. SWAT modelling)



Task 3

Exploring hidden potentials

Scalability plans
for landscape restoration
Prospect 2030/2050



Restoration opportunities across Europe

25,000 km of free-flowing rivers

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25,000 km of free-flowing rivers

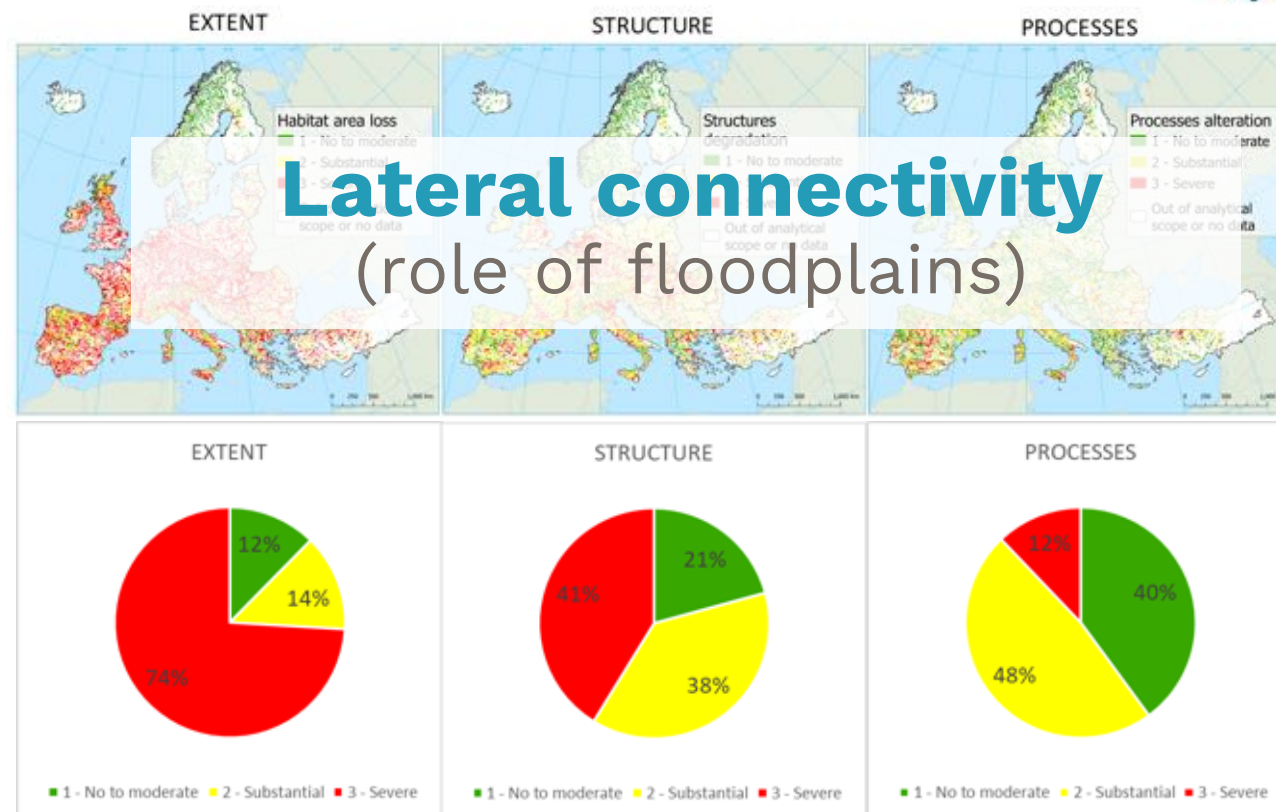
= **1.5%** of the entire WFD surface water body network in the EU

Restoration opportunities across Europe

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European Environment Agency
European Topic Centre on Inland,
Coastal and Marine Waters



Globevnik et al. (2020)

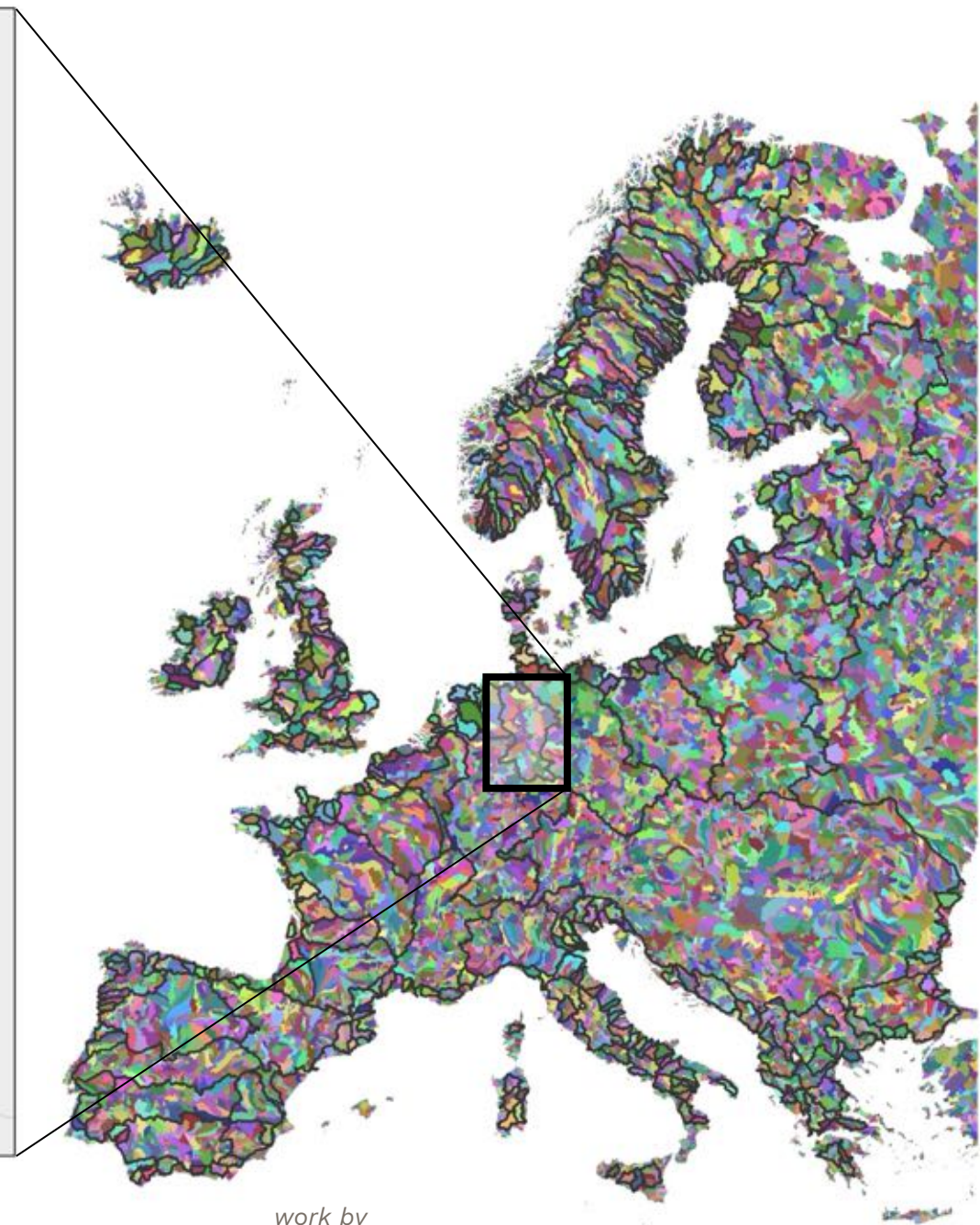
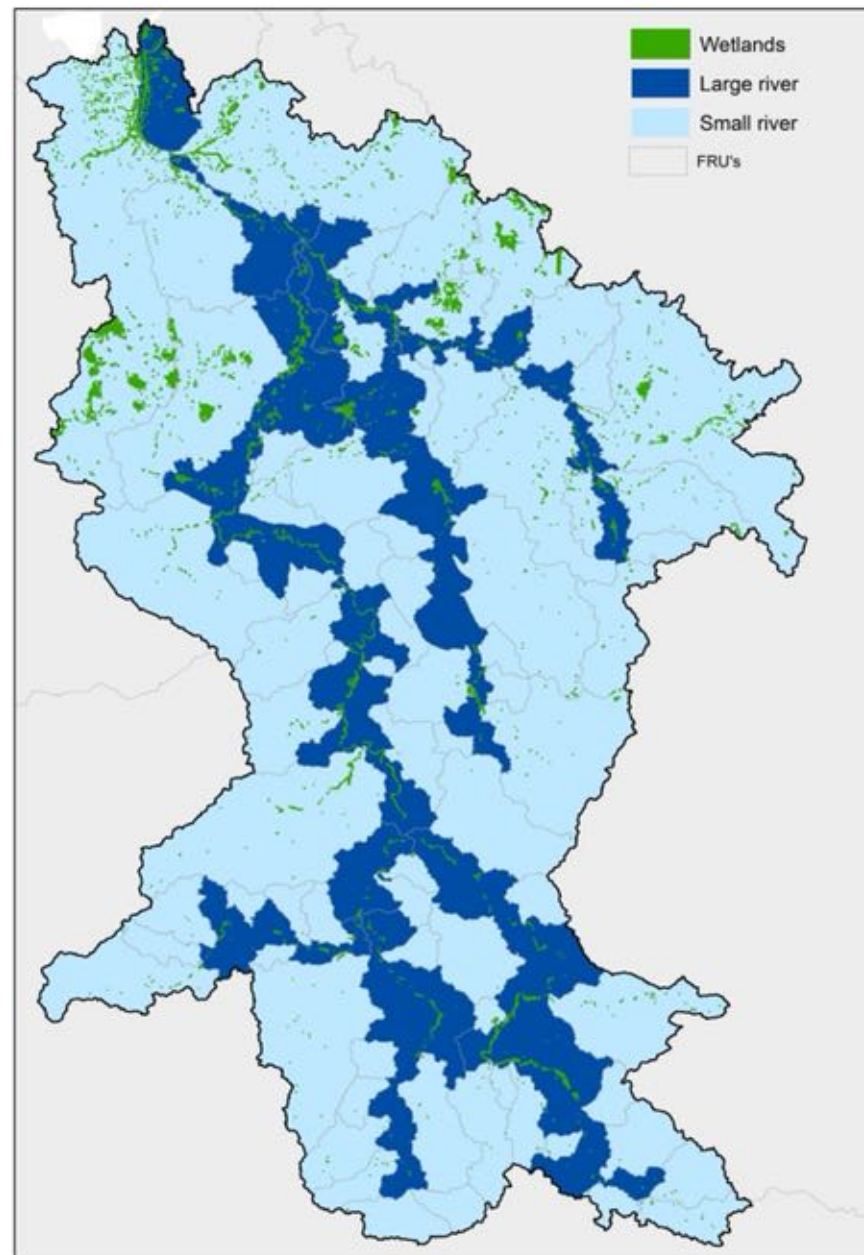
Restoration opportunities across Europe

MERLIN

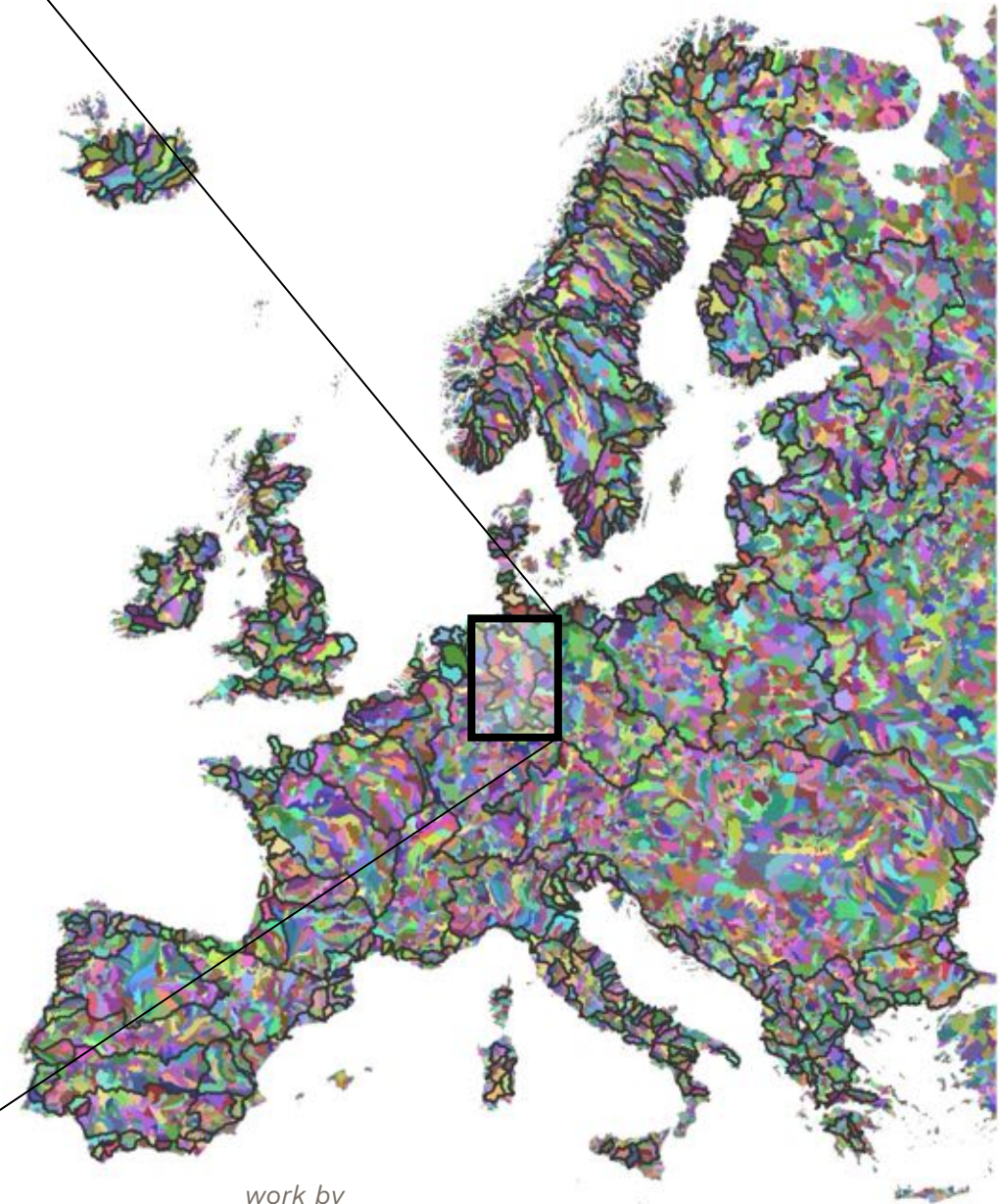
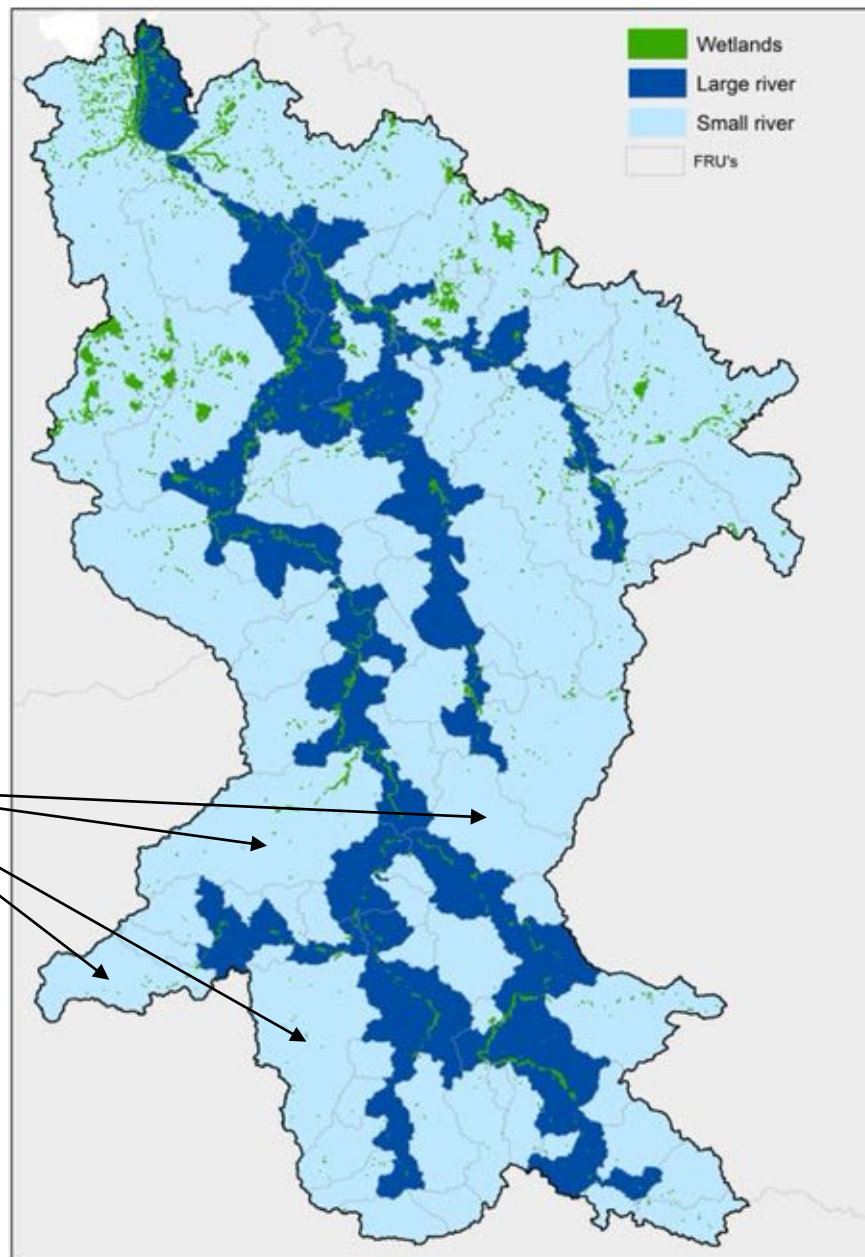
Functional Restoration Units for freshwater-related ecosystems



work by
Paulo Branco, Gonalo Duarte, Teresa Ferreira (ULisboa)

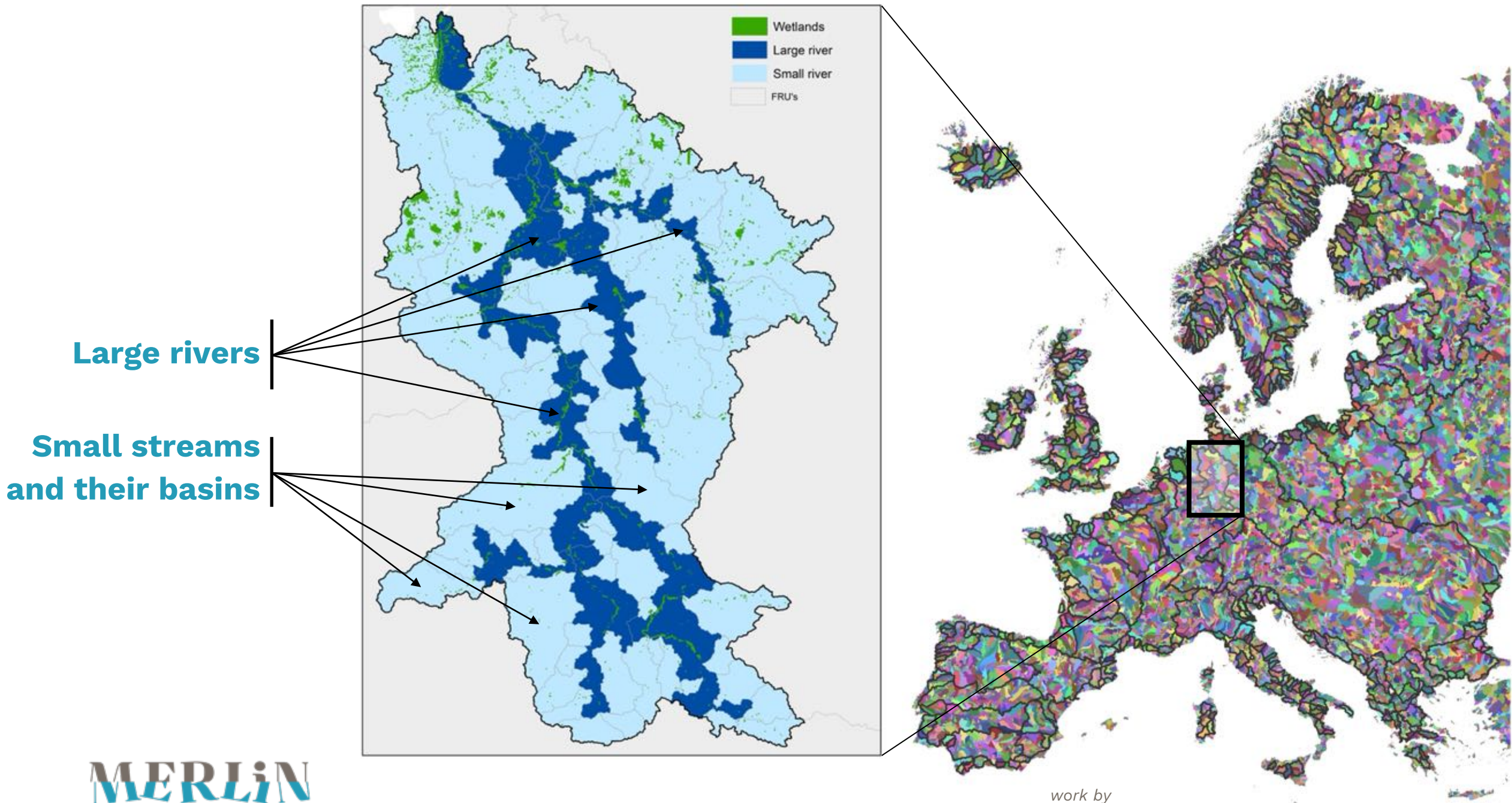


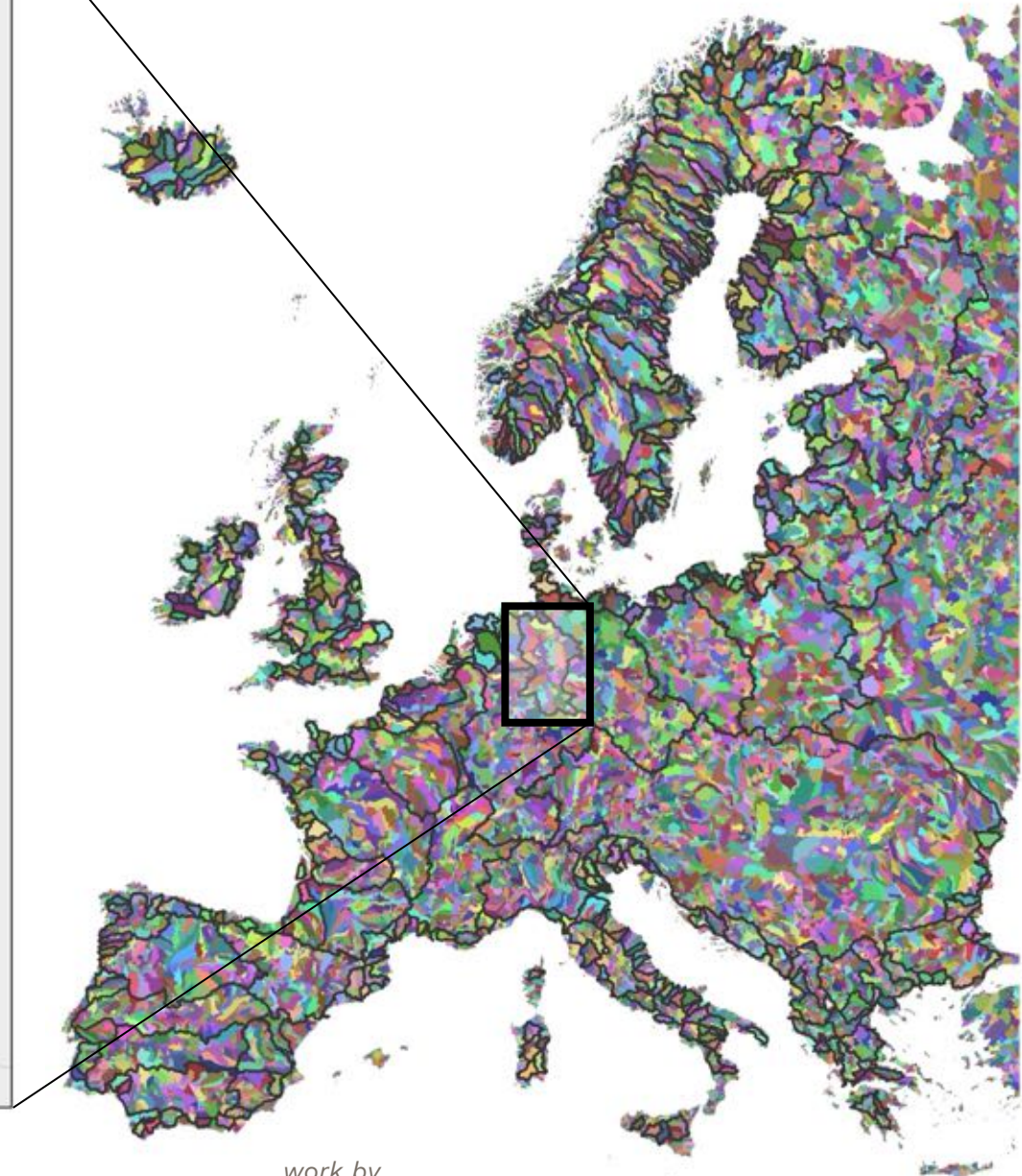
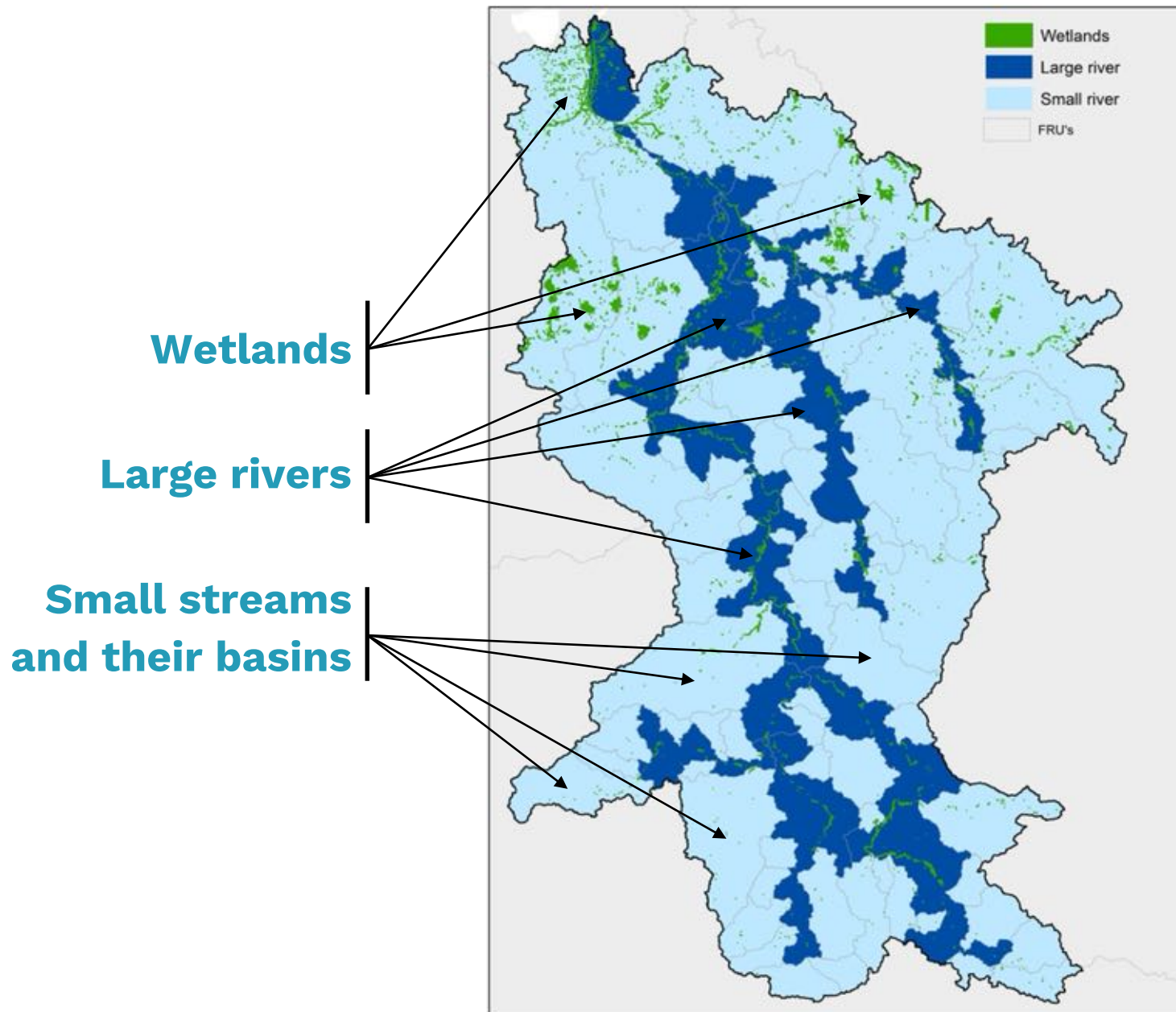
**Small streams
and their basins**



MERLIN

work by
Paulo Branco, Gonalo Duarte, Teresa Ferreira (ULisboa)





Functional Restoration Units

- 3 categories
= 3 particular challenges
- Homogeneous
management units
- Integrative mapping



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Functional Restoration Units

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*Quantifying the
restoration potential*



Task 4

Creating conducive conditions

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Engaging with economic sectors

Task 4

Creating conducive conditions



Engaging with economic sectors

Seizing green business opportunities



Round-table *Hydropower*





Round-table *Hydropower*

Kick-off event (April 2022)

- *Trends in hydropower*
- *Responsibility in supporting EU Green Deal ambitions*
- *Cost-benefit of dam removal*



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Support requested from MERLIN

- *Outcomes of small dam removal*
- *Restoration options supporting EU Green Deal ambitions (incl. potential financing schemes)*
- *Understanding of basin-context*

Political debate in Germany

Political debate in Germany

→ Position-paper
(November 2021)
**Climate action
versus
Aquatic ecosystem
protection**
signed by
65 German expert
academics

<https://www.igb-berlin.de/news/foerderstopp-fuer-ineffiziente-kleine-wasserkraftanlagen>

Memorandum

deutscher Fachwissenschaftler:innen
zum politischen Zielkonflikt Klimaschutz versus Biodiversitätsschutz bei der Wasserkraft
4. November 2021

Energiewende nicht auf Kosten der aquatischen Biodiversität

- Förderung von Kleinwasserkraftwerken aus EEG- oder Steuermitteln beenden,
- Förderung von Großwasserkraftwerken nur im Einklang mit dem Wasserhaushaltsgesetz

Die unterzeichnenden 65 Fachwissenschaftler:innen aus 30 wissenschaftlichen Institutionen empfehlen der Bundespolitik dringend, die staatliche Förderung der über 7 800 unwirtschaftlichen, umweltschädlichen und nicht ökologisch sanierbaren Kleinwasserkraftwerke (mit <1 Megawatt Maximalleistung) über das Erneuerbare-Energien-Gesetz (EEG) oder Subventionen zu beenden. Diese Kleinwasserkraftwerke (KWKWe) tragen zusammen nur <0,5 % zur Stromproduktion und damit kaum zur Energiewende bei, stellen aber mit ihren Wehren und Turbinen eine wesentliche Ursache dafür dar, dass Deutschland wesentliche Umweltziele im Biodiversitäts- und Gewässerschutz verfehlt, wie



Lachs beim Versuch, ein Wehr in der Sieg zu überwinden. Foto: Nico Höpfer

- die verbindlichen EU-Ziele der Längsdurchgängigkeit und des „guten ökologischen Zustands“ der Fließgewässer (gemäß EG-Wasserrahmenrichtlinie), und darauf aufbauend
- die Erhaltung der aquatischen Biodiversität, insbesondere auch lebensfähiger Populationen ökologisch, ökonomisch und kulturell wichtiger Fischarten wie Lachs oder Huchen (gemäß EU-Flora-Fauna-Habitatrichtlinie erforderlich).

Dieses wissenschaftliche Memorandum informiert über die Hintergründe, Zusammenhänge und Lösungsmöglichkeiten des politischen Zielkonflikts zwischen Klimaschutz versus Biodiversitätsschutz bei der Wasserkraftnutzung und empfiehlt sieben umweltpolitische Initiativen (s.u.). Diese zielen darauf ab, die Nutzung der Wasserkraft mit den gesetzlichen Zielen des Gewässer- und Biodiversitätsschutzes zu harmonisieren. Damit ermöglichen diese Initiativen auch die Umsetzung wesentlicher Forderungen der Nationalen Wasserstrategie, wie

- konsequentere Anwendung des geltenden Wasserrechts bei der Wasserkraft zur Minderung der ökologischen Auswirkungen von Wasserkraftwerken (BMU 2021a) und
- die im Klimawandel erforderliche Erhöhung der Widerstandsfähigkeit der Gewässer gegenüber dem Klimawandel im Rahmen eines großen Sofortprogramms (BMU 2021b), womit die immer dringender benötigten Ökosystemleistungen der Gewässer gestärkt werden.

Political decision making in Germany

→ **Draft amendment
to the Renewable Energy Act 2023**
(March 2022)

*“Renewable energy facilities are in the
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Exemption according to WFD Article 4(7)
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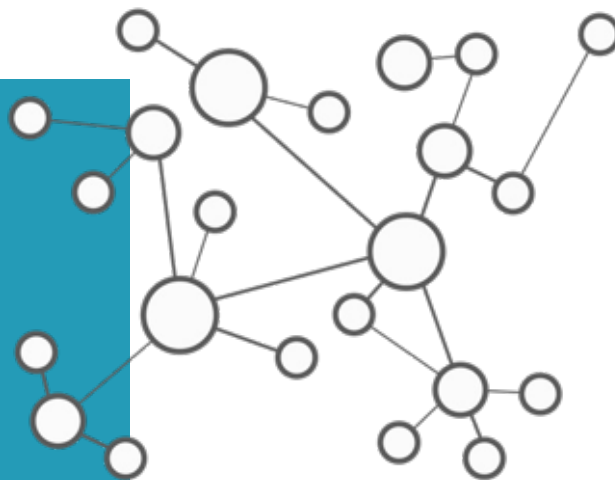
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→ The **end** for small hydropower operation
in Germany?

Task 5

Multiplying the change



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Multiplying the change



MERLIN Marketplace

- Connecting restoration actors
- Offering restoration-related services
- Brokering restoration financing



Task 5

Multiplying the change

MERLIN
Academy







**Looking forward to interacting with the
DR community in the next years!**

MERLIN

Mainstreaming Ecological Restoration
of freshwater-related ecosystems in a Landscape context:
Innovation, upscaling and transformation



The MERLIN project (<https://project-merlin.eu>) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036337.