

Developing policy and planning of river continuity restoration in greater Europe

May 27 2021, Sharelle Verheij (ECRR)



stowa

Deltares



Programme

Opening

Project
background

Results &
conclusions

Recommen-
dations

Feedback

Background information

■ River barriers



■ Barrier prioritization



Background information



Data collection

- ECRR Network / Ministries

Survey set up

- 3 blocks



29 participating countries



Opening

Project
background

Results &
conclusions

Recommen-
dations

Feedback

Recognition

Potential

Observations

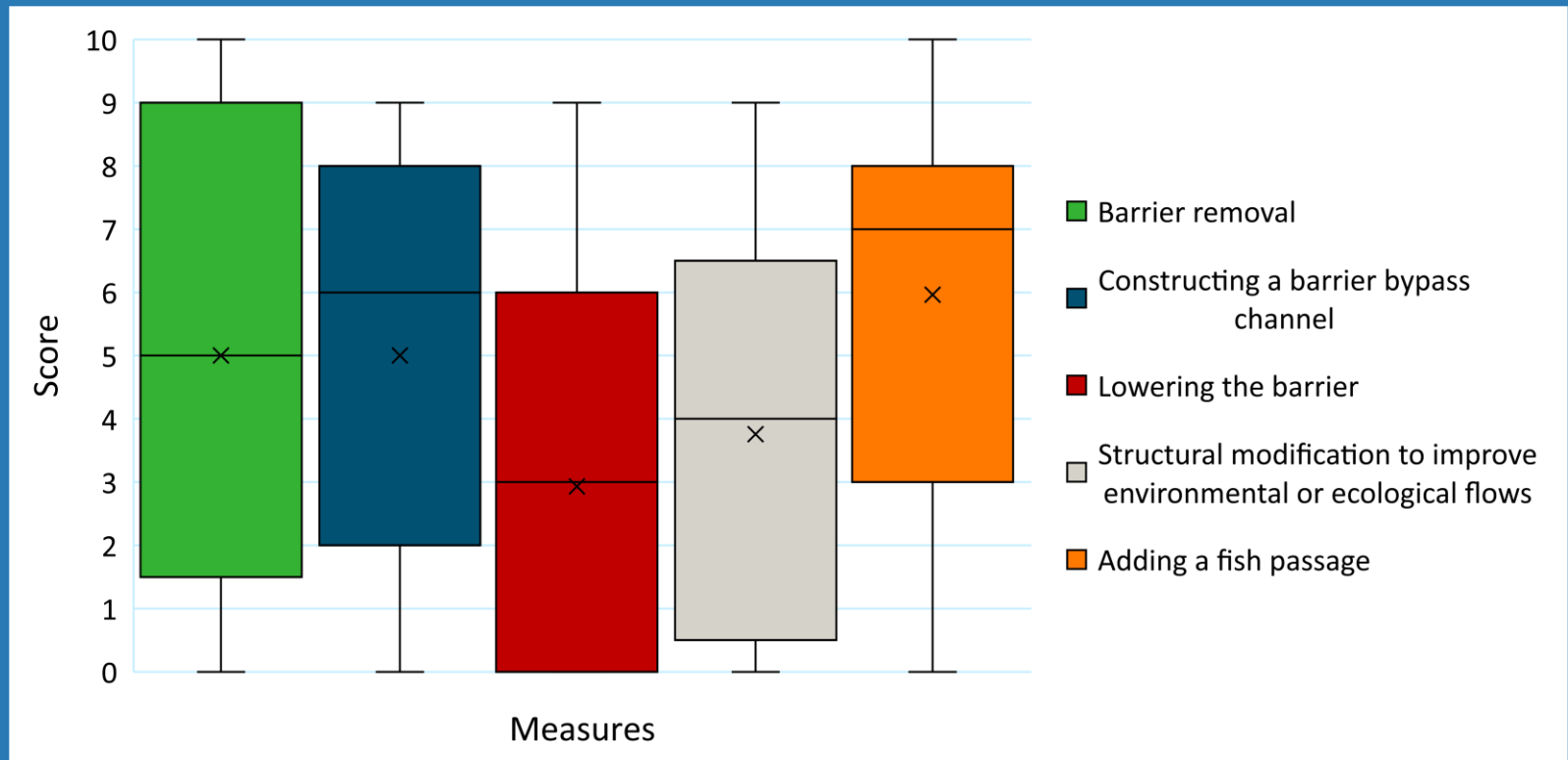
Results: Block 1

Recognition of river continuity in current national policies



Results

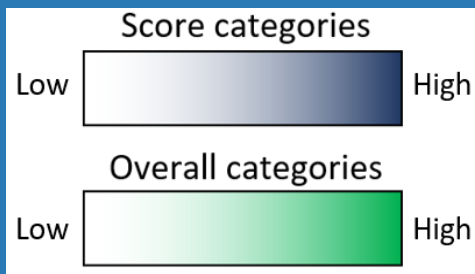
Which measures are applied to restore river continuity?
Scale: 0 (not considered) to 10 (highest priority)



Results

Which measures are applied to restore river continuity?

Legend:



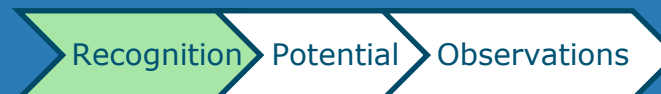
	<i>Adding a fish passage</i>	<i>Constructing a barrier bypass channel</i>	<i>Barrier removal</i>	<i>Structural modification to improve environmental or ecological flows</i>	<i>Lowering the barrier</i>	<i>Overall</i>
Wales (UK)						
Poland						
Scotland (UK)						
Spain						
Ireland						
Estonia						
France						
Finland						
England (UK)						
Denmark						
Cyprus						
Sweden						
Germany						
Austria						
Portugal						
Lithuania						
Northern Ireland (UK)						
Republic of North Macedonia						
Romania						
Switzerland						
Slovakia						
Netherlands						
Norway						
Hungary						
Latvia						
Bosnia and Herzegovina						
Russia						
Malta						
Overall						

Results



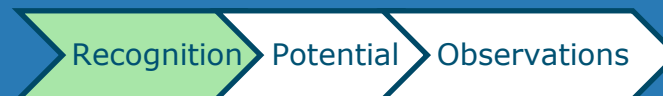
Barriers prioritized for measures to improve the river continuity

1. Largest environmental/ecological impact
2. Easy to implement measures
3. Lacking (operative) fish passage
4. Obsolete
5. Relatively small
6. High dams



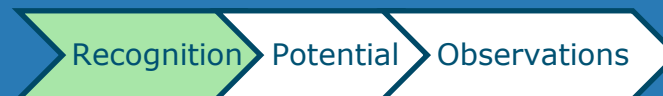
River continuity restoration conflicted by barrier functions

1. Renewable energy (hydropower)
2. Flood protection
3. Water storage for agriculture
4. Cultural heritage
5. Water storage for drinking water
6. Recreation
7. Inland navigation



Stakeholder groups influencing river continuity policies

1. Industries (e.g. energy sector)
2. NGOs
3. Public sector
4. Fishery organisations
5. Recreational sector/angling
6. Landowners



Conclusions: Block 1

Recognition of river continuity in current national policies

Measures: (1) *Fish passage*

(2) *Bypass channel / removal*

Barrier type: *Largest environmental impact*

Conflicting function: *Renewable energy (hydropower)*

Influential stakeholders: *Industries, NGOs, public sector*



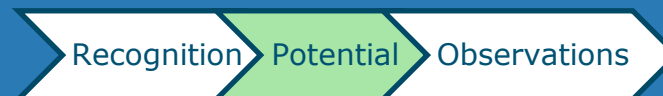
The potential of river continuity restoration



Total number of artificial barriers

680,227

- **46%** can be adjusted to include a fish passage
- **20%** is obsolete
- **1%** barrier removals have taken place



Conclusion: Block 2

The potential of river continuity restoration

Great potential and opportunities



Results: Block 3

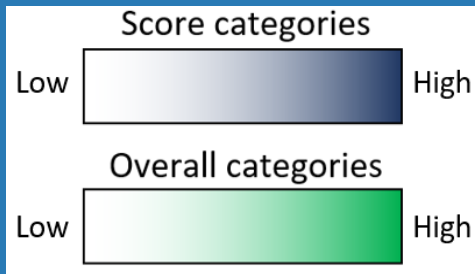
Observations/opinions on the importance of / opposition to river continuity restoration



Results

To what extent are the following actions used to improve the quantity and/or quality of river continuity restoration?

Legend:



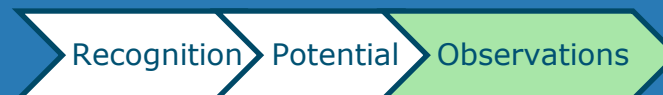
	Complementing/ improving currently available information/ knowledge	Legal enforcement and regulations	Financial support for projects and/or the barrier owners	Development of (best) practices	Optimizing already existing continuity measures	Better integration of policies and directives	Increasing political attention	Raising public awareness on the issue	Overall
Austria									
Republic of North Macedonia									
Wales (UK)									
Slovakia									
France									
Denmark									
Netherlands									
Finland									
Romania									
England (UK)									
Scotland (UK)									
Spain									
Lithuania									
Germany									
Switzerland									
Portugal									
Estonia									
Sweden									
Northern Ireland (UK)									
Poland									
Norway									
Russia									
Ireland									
Croatia									
Cyprus									
Hungary									
Malta									
Bosnia and Herzegovina									
Latvia									
Overall									

Results



Ways to improve communication of policies towards the public

1. Awareness raising
2. Public participation
3. Demonstration of best practices
4. Citizen science
5. Promotion
6. Advertising



Conclusion: Block 3

Observations/opinions on the importance of / opposition to river continuity restoration

Awareness raising is most effective, but not yet put into practice to its full potential.



Recommendations

3 target audiences:

- Policymakers & planners
- Implementers
- Researchers



Recommendations: Policymakers & planners

- Improve/develop framework regarding strategies, policies & planning
- Investigate policies, planning, prioritisation, guidance, instruments & tools



Recommendations: Implementers

- Use drivers & strategies
- Increase awareness raising
- Involve stakeholders
- Showcase best practices



Recommendations: Researchers

- Improve/expand/verify knowledge, methodologies & techniques
- Test/verify long term outcomes
- Integrate science
- Monitor baseline & changes
- Learn from implementation
- Provide evidence



Recommendations: Overall

- National policy
- Prioritisation strategy for removals
- Measures prioritisation
- National database of barriers
- Implementation programmes



Publication & newsletter

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A pan-European survey to strengthen and improve policies and strategic planning regarding river continuity restoration



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A pan-European survey to develop policies and strategic planning regarding river continuity restoration

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1. Introduction

River barriers, including dams, weirs, culverts, fords, sluices, or ramps or bed sills, are man-made obstacles that are installed in rivers for specific, mostly provision-related, ecosystem services such as flow regulation, hydropower generation, water level control or erosion reduction (AMBER, 2020). Other functions include transport (navigation), recreation, water storage for agriculture (irrigation) and drinking water, flood protection, and cultural heritage. However, they obstruct a river, disrupting the longitudinal flow of the water, sediment and aquatic biota. The disruption of river continuity has been shown to result in a major decrease in species diversity (Joy & Death, 2001; Morita & Yamamoto, 2002), as well as population declines and even extirpation of freshwater fishes and mammals (Allan & Flecker, 1993; Miller et al., 1989; Page et al., 1997). Only 37% of rivers around the world that are longer than 1,000 kilometers are still free flowing and only 23% flow into the ocean without interruptions (Gill et al., 2019), so the current status of global river continuity is not good, and it is worsening.

2. Rationale

A river continuity survey approach made it possible to investigate the current situation in every participating country regarding the recognition of the importance of river continuity in national policies and the potential for restoration. By getting to know the country specific situations, the questions have provided insight into policies and the required support concerning guidance and tools. In order to advance river continuity restoration, what should be the main strategy per country and/or group of countries? This has been analysed through 60 questions, put to national governments which covered the following topics:

1. Recognition of river continuity in current national policies
2. The potential of river continuity restoration in each country
3. Observations/opinions on the importance of and opposition to river continuity restoration

The answers to this survey and the results of their analyses have allowed initial conclusions and recommendations to be drawn as to the current situation regarding river continuity restoration policies and strategic planning in wider Europe.

This information can be used in follow-up activities to formulate advices, improve current policies or propose and develop new policies and national restoration strategies, and generate greater support. Altogether, this could subsequently be developed into a Europe-wide openly accessible database on the progress and status of river continuity, assisting national governments and river authorities in restoring river continuity. This will be beneficial for all the participating countries for achieving the relevant water legislation targets and UN Sustainable Development Goal 6.5.

3. Survey results

3.1 Participating countries



Figure 1. The 29 participating countries (green).

29 out of the 49 contacted countries, covering more than 80% of the area, have participated in the survey (figure 1). The participants mainly consist of specialists and senior research officers at environmental ministries, nature agencies, and marine and riverine knowledge institutes for water resources management.

All survey questions and the answers can be found in the full report 'A pan-European survey to strengthen and improve policies and strategic planning regarding river continuity restoration' by Verheij, Fokkens and Buijse (2021). In this special newsletter, only the most important results will be shown.



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