

# EURO-INBO 2023

## Outcomes of the workshop

INBO 2023



**River management in a climate  
change context: challenges  
and opportunities**

The "EUROPE-INBO" group of basin organizations for the implementation of the Water Framework Directive (WFD) was created in Valencia, Spain, in November 2003. It gathers European member organizations and observers from the International Network of Basin Organisations. It mobilizes European Basin Organizations and District Authorities to exchange on their practical approaches and experiences, identify operational problems, and to share difficulties and successes.

Each year since 2013, a participative workshop is organised back-to-back to the annual General Assembly of the EUROPE-INBO. It aims at exchanging experiences on a specific topic, directly linked to the implementation of the European Directives and regulations related to water and biodiversity.

In the context of the 20th EUROPE-INBO Conference, a workshop on “River management in a climate change context: challenges and opportunities” was held on. It gathered more than 60 participants that were able to benefit from experience feedbacks on strategies or case studies from various Member States.

The state and management of rivers under the actual climate change context were discussed, as well as the future of our rivers in such a context. The objective of this workshop was to facilitate exchanges of experiences and inputs in different climatic contexts. River’s preservation and restoration have been the central point of these exchanges, considering different scales of time and space.

*This document sets out the key elements of the workshop. It contains the main messages from the various presentations made at the workshop, as well as a review of the discussions between participants.*

## INTRODUCTION

Europe's rivers, lakes and alluvial habitats are under immense pressure. Among the key pressures, fragmentation and hydro morphological changes remain in the top tier, has shown by the European assessments after two RBMP cycles.

Preserving watercourses in good ecological and functional condition and ensuring the restoration of degraded watercourses is a necessary condition for achieving good ecological status under the European Water Framework Directive (WFD): "Member States [of the European Union] protect, improve and restore all surface water bodies".

This objective of restoring and preserving waterbodies is also linked to some European policies such as the Habitats Directive, the "eel" regulation, or the strategy on green infrastructures. The recent Green Deal and its Biodiversity Strategy 2030 also aim at putting Europe's biodiversity on the path to recovery by 2030, with a view to ensuring that by 2050 all of the ecosystems are restored, resilient, and adequately protected.

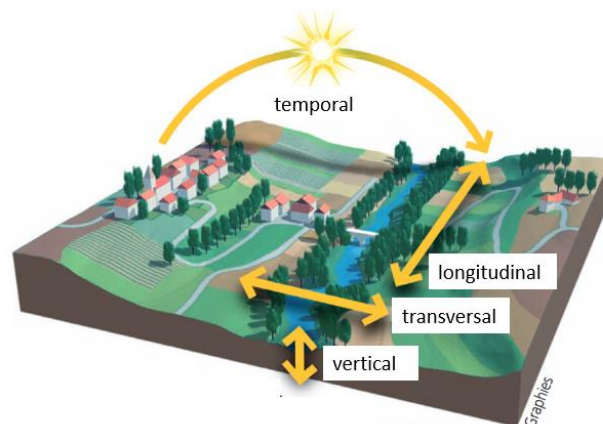
Climate change is causing more and more extreme and repeated weather and climate episodes. European territories are facing more frequent floods for 30 years, and droughts are also increasingly occurring, in particular for Mediterranean countries. These events are causing or enhancing new pressures on rivers and causing difficulties for water resources management. For example, how to deal with temporary streams?

In so, climate change impacts affect and interact with WFD implementation activities at different states in the process. Climatic variables are the root of many of the parameters that influence water resources and therefore it is important to consider climate change when aiming to achieve the WFD objectives (good status of all waters).

In this context and for a better implementation of the existing legislation on freshwater, the Biodiversity Strategy has set the target to make at least 25 000 km of rivers free-flowing again by 2030, by removing primarily obsolete barriers and restoring floodplains and wetlands.

Indeed, beyond the longitudinal continuity, lateral connectivity is also essential to rivers.

Floodplains and wetlands but more globally the whole territory of the water catchment have essential roles for the good functioning of rivers.



**Figure 1: The four-dimensional nature of river ecosystem**

Climate change will impact water availability, causing water scarcity. Water scarcity is both a natural and human-made phenomenon and defined as the point where there are insufficient water resources to satisfy long-term average requirements and is especially predicted in Southern Europe, but almost all Europe can be affected by severe drought events. This will lead to more water abstraction, especially by the agriculture in Southern Europe, subsequently leading to an increasing water stress with a rising water temperature, deteriorating water quality and natural habitats for flora and fauna and an increase of invasive species. Nevertheless, extreme precipitation is projected to increase until the end of the 21st century in those regions that are relatively wet under present climate conditions, such as middle and Northern Europe. These impacts might intensify existing cross sectoral competition for water resources.

Management measures to adapt, compensate or mitigate the impacts are adapting best practice management to the situation, like land use change and regulation of water use. But there are also operational measures related to technical and / or green infrastructure.

Amongst these operational measures that can be used in the catchment, Natural water retention measures (NWRM) can help to restore, enhance and preserve the water retention capacity of aquifers, soils and ecosystems, with a view to improving their status.

NWRM provide multi-benefits including the reduction of risk of floods and droughts, water quality improvement, groundwater recharge and habitat improvement. Combined in the watershed, both in terms of the hydrographic network and land use, they may have a significant effect in increasing water retention. Natural water retention measures and Nature-based Solution (NbS), which both rely on the same focus on nature or ecosystem services, can then play a major role in the adaptation to climate change, making ecosystems more resilient. Even if these measures could be implemented at different spatial and time scales, the river basin scale seems to be particularly relevant to have significant benefits.

In the following section, we will review the presentations made by the various speakers and the main messages delivered to the participants. These presentations provided participants with

feedbacks on experiences in very different geographical and climatic contexts. These presentations encouraged a great deal of discussion between participants. These exchanges will be the subject of the last paragraph of this document.

## PRESENTATIONS AND KEY MESSAGES FROM THE WORKSHOP SPEAKERS

### Introduction of the workshop

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**Eric Tardieu (INBO secretariat)** introduced the workshop by pointing out that, year after year, EURO-INBO tries to promote direct exchanges between network members on a topical issue at European level, invasive alien species. For this workshop, he recalled that preparatory work was organised within a steering committee bringing together the OFB, Spanish colleagues from the ECRR and representatives of the network in order to prepare a concept note, identify interesting case studies and organise today's exchanges.

Since the emergence of the WFD, as members of EURO-INBO and water managers, we have had to take an increasing interest in biodiversity, ecological status and ecosystem restoration in our work. The workshop proposes to focus on these topics of restoration, river management and climate change in order to identify potential synergies with the RBMP and to propose concrete recommendations as water managers on this subject.

**Andréa FERRET-LAMBERT (OFB)** began by reminding that it is not a secret that climate change will affect the availability and quality of water resources, which implies changes in human uses and natural processes. Adapting to climate change cannot forget a discussion on the way we manage rivers, for around 75% of our water use in Europe comes from river and reservoirs according to the European Environment Agency. Our water system is bound to be altered in quantity and quality in the years to come.

What's more, freshwater biodiversity is one of the most endangered by human activities and by the effects of climate change: according to the IUCN, 59% of amphibians and 38% of freshwater fish are endangered in Europe. The good news is that protecting biodiversity and restoring adequate habitats for these species can, as we will see in this workshop, assist human societies in adapting to climate change, improve water quality and contribute to reducing water stress.

River preservation and restoration are one of the many levers for action promoted by OFB, to address these issues.

Andréa Ferret-Lambert has reminded that the OFB (public institution under the authority of the French ministries responsible for Ecology and Agriculture) believes that protecting biodiversity also means preserving ourselves, as biodiversity and its services are essential to human societies. OFB has 5 complementary missions: enhancing knowledge, policing, managing protected areas, supporting public policies and mobilizing civil society, both in mainland France

and in the overseas territories. Across the French territory, OFB is committed to promoting restoration, by financing projects and helping to monitor restoration actions carried out by other actors.

The OFB is also active at the European level, supporting as needed the missions of both its ministries. As an example, the OFB is engaged in the implementation process of European texts, including the Water Framework Directive. The OFB, as a member of the European Centre for River Restoration, contributes to the sharing of resources and capacity building of practitioners on river restoration, through exchanges on good practices and case studies across Europe.

**Bart Fokkens (Associate expert, European Centre for River Restoration)** gave an introduction on the impact of climate change on the water cycle and Climate resilience water management. The resilience of river eco-systems is crucial for the freshwater provision. Rising water temperatures, deteriorating water quality and loss of biodiversity need as much as possible to be prevented or restored by integrated river basin management.

Thematic water resource plans and permits, reduced water use, increased water efficiency and stable supply of drinking water are a necessity. Sustainable land use, NWRM (natural water retention measures) and NBS (Nature-based Solutions) for river management measures are tools to combat water scarcity. And zero pollution policies and plans for air, water and soil together with citizens and stakeholder involvement should help to reduce the impacts. Bart Fokkens added some key points for adapting rivers to climate change in an integrated approach:

- Enhancement of resilience can be achieved by freshwater ecosystem restoration by main streaming ecological river restoration.
- Connectivity can be restored by reducing fragmentation: dam removal: fish-passes and natural look like bypasses are needed for restoring (free) flowing rivers.
- Protection of water resources and conserving freshwater habitats profit from NWRM
- Flood protection measures by Nature-based Solutions
- Adequate and robust river management strategies is enabled by the WFD river basin management plans and the 2027 objectives.

**Belén Piñol & Emilio Real (River Júcar Basin Authority, Spanish Department for Environment)** completed the introductory phase of the workshop with the presentation of **“Making rivers more resilient to climate change: restoring native vegetation and removing obstacles”**



*Recover native vegetation and obstacles makes Rivers resilient to climate change and benefits environment and society.*

**Introduction:** Spain has undertaken a fierce fight against one of the most daunting challenges of in the 21st century: adapting to climate change. The presentation explains the problematic situation the region suffers and the solutions implemented through case studies in native vegetation restoration and removal of abandoned weirs. Additionally, social and public agents are being coordinated to achieve the best solution possible.

**Problem description:** On one side, common cane or *Arundo donax* is an invasive alien species that impoverishes the ecosystem, decreases water quality and quantity, increases flood's damage and encourages wildfires.

On the other hand, abandoned dams and weirs constitute an obstacle to the continuity of fish life and solid flow, as well as being a risk to people.

Both problems make river ecosystems more vulnerable to climate change hazards. The situation can only worsen with stronger floods, drier droughts and ravaging wildfires.

**Solution:** In order to mitigate the impact of climate change, government implemented a national strategic plan to increase river resilience by replacing alien invasive species by local ones and removing obsolete river obstacles. Temporary covering of cane roots has shown to be the most efficient technique to eliminate invasive cane. The presentation explained through two case studies the best technics, innovative process and experience acquired.

**Cooperation among social agents and public agencies:** According to the speakers, the best ideas and solutions always come through teamwork, involving in a productive way local people, environmental groups, economic sectors and local government. Knitting alliances can only be done through open participating processes where information flow is efficient, with clear distribution of responsibilities. This participative initiative has added valued to the planning and execution of works.

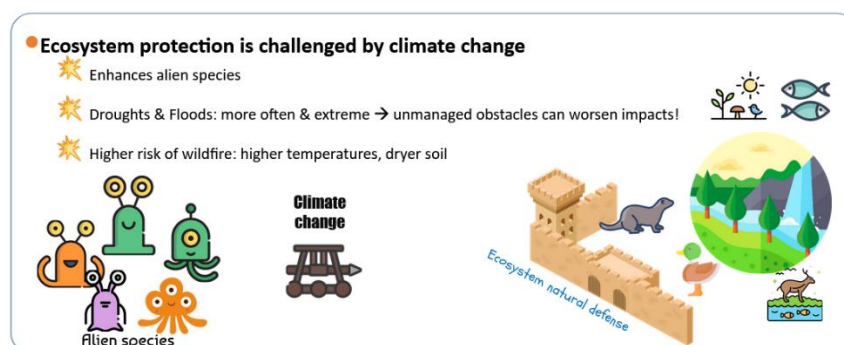


Figure 2: Ecosystem protection is challenged by climate change

*After this introductory phase, the workshop continued with two different sequences. Each sequence consisted of two presentations followed by a period of audience participation. Summaries of the presentations can be found in the following chapter.*

## Part 1: River management and climate change nowadays

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### ✓ Watercourse restoration efforts at the intermittent Cerknica Lake in Slovenia - [Likar Irena, project manager of LIFE STRŽEN, Notranjska Regional Park](#)

In the 20th century, several watercourses of Cerknica Lake were redirected into straight canals, leading to a reduction of over a quarter in the streams' original length, from 45 to 33 kilometres. These interventions, aimed at drying out the lake and obtaining more land for agricultural use, did not achieve the intended agricultural benefits as the land of the intermittent Cerknica Lake remained too saturated for the successful growth of grass for domestic animals.

Consequently, these regulations caused harmful changes in natural processes and drastically changed the ecosystem of the intermittent lake. Living conditions of species inhabiting aquatic and riparian habitat types have declined. Some species disappeared from the area entirely. Biodiversity and ecosystem stability were significantly reduced. Negative consequences of past interventions, exacerbated by drier summers, caused by climate change, are even more evident nowadays. The lake usually disappears several times a year, instead of once every couple of years, as it used to.

The restoration of Stržen, the main watercourse of Cerknica Lake, conducted under the LIFE STRŽEN project, has proven crucial in addressing these ecological challenges. The restoration, adapted to the challenging weather conditions and the lake's intermittent nature, successfully restored a double meander in the Ključ area with a total length of 2.1 km. This extension of the watercourse by 1.5 km has increased the water particle travel time from 30 minutes to over 3 hours and 15 minutes, ensuring that water remains in the area for a more extended period.

This improvement is crucial for the survival of water-related species during the dry season, marking a significant stride in ecological restoration amidst the backdrop of climate change. The restored watercourse not only enhances conditions for the survival of fish, invertebrates, birds, and mammals by increasing food availability and access to the area but also benefits the growth of characteristic habitat type plant species.

The excavation and relocation of 31,000 m<sup>3</sup> of soil, the filling of the canal, and the extension of the water body are tangible outcomes underscoring the project's success. These efforts collectively contribute to the resilience of the lake's ecosystem, offering a buffer against the adverse impacts of climate change and a model for similar restoration initiatives.





Figure 3: restoration works at the end of July 2021 with filling in the straight canal (left)/after restoration works (right)

✓ **Multiple benefits of reopening rivers in Oslo - Anders Iversen, National water Coordinator, Norwegian Environment Agency**

Oslo municipality has a policy to reopen closed stretches of its eight main rivers where possible. The presentation has made a 5-stop trip from source to sea along Hovin Creek. The creek was closed in 1959, as a result of being recipient of sewage and industrial wastewater, making it a stinking health risk. Between 2014 and 2023 five stretches have been reopened, totalling almost 3 km. Reopening is a lengthy and stepwise process. There is a window of opportunity for reopening when other projects are planned and executed along the river, for instance urban regeneration or infrastructure developments (road, rail). Urban reopening is not ecological restoration, due to lack of space for re-meandering, and often no contact with the groundwater. Different stretches have different compromises, balancing the rivers needs with the needs for housing, transport, business, parks, sport-fields and sport-halls, art installations etc.

Various benefits have resulted from these actions:

- Benefits for Climate Adaptation
- Benefits for Urban Nature
- Benefits for Pollution Reduction
- Benefits for Recreation and Health

**Challenges experienced** include algae bloom that occur in the beginning but disappear after some years, and the fact that bathing water quality probably will not be reached until upstream stretches are remediated.

**Success criteria** include the need for cross-sectoral coordination within the municipality, clearly distinguished roles and responsibilities, planning and acquisition of sufficient space for the river, coordinated financing of the project, early involvement and participation from the local community and affected residents, coordination with other projects in the same area, and professional assessment and planning, design and implementation, maintenance and operation.



Figure 4: Bjerkedalen Park (pictures 2023) - Anders IVERSEN

## PART 2: Adapting River management to climate change

- ✓ Following the efficiency of hydromorphological river restoration works (HRRW) - Focus on two yards in the Artois Picardie water basin. The Hem river 's « lab » and the Course river - [Marlène ROLAN-MEYNARD & Stéphane JOURDAN](#)

*With the help of Jean-Luc CARPENTIER, Sandrine TRAISNEL and Hubert VERHAEGHE (AEAP), Sophie TUAUX and Anne VIVIER (OFB), Elodie Maurice (Parc Naturel Régional des Caps et Marais d'Opale), Arnaud ROUSELLE and Emilie DELATTRE (SYMCEA) and all the partners of the MSM in Artois – Picardie basin.*

Ecological restoration is implemented more and more on rivers and lakes in Europe, aided by public policies (mainly Water framework directive). But the effects of these measures on physical parameters and on communities remain still poorly understood, due to a lack of relevant monitoring and of contextual data. That's why the demonstration sites network (DSN) is born, aiming to implement standardized protocols on a large number of restored sites.

Today, global change should be taken into account in freshwater ecosystem restoration, to explain observed situation. Global change is included in two ways in the DSN: direct measures and monitoring process. Since 2010, the project has been constantly evolving to fill-in the gaps highlighted through regular overview.

Artois – Picardie water agency, like the other agencies in France, grants funds to owner masteries to lead projects on rivers restoration. In this basin, hydromorphology of the rivers could be altered, through many past events as wars and hydraulics projects (mostly for flood fighting and navigation). Biology of the rivers suffers from the lack of suitable habitats. Among all criteria for hydromorphological elements supporting the biological elements (hydrological

regime, river continuity, morphological conditions), river continuity was described as a limiting factor in 2009, 2013 and 2019.

The Artois - Picardie Water Agency has led part of the works of hydro morphological river restoration as a direct project owner, especially focused on river continuity (more than 60 dams “removed” since 2010). The results of the MSM on the Hem River since 2017 are very hopeful, from both biological and hydro morphological elements. A new MSM has begun on another dam removal on the Course River, after HRRW led in 2021.

First results demonstrate significant effects on the biology of the rivers after HRRW (up to 5 years after), which confirms that HRRW enables the river and its inhabitants to face the climate change effects.

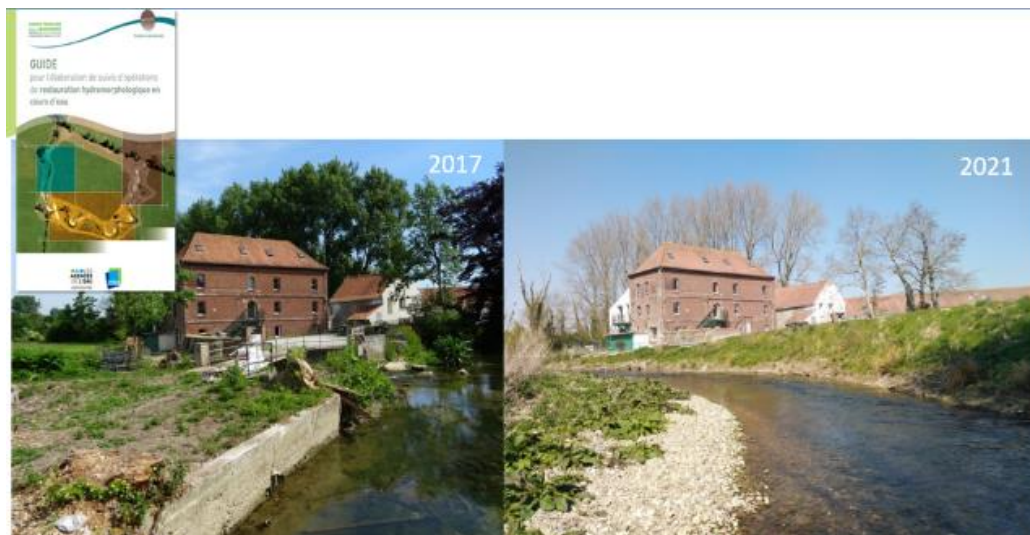


Figure 5: Removal of dams on the Hem river

- ✓ Effects of Climate Change on the metacommunity structure of a Mediterranean basin -  
Alejandra Tierno, Eurofins Cavendish

*The metacommunity studies are a valuable tool to know how climate change will affect the aquatic organisms used as biological indicators under the WFD and to be able to act accordingly through prevention.*

**Location and vulnerability to climate change:** For this study, we are located in the south of the Iberian Peninsula, in the Guadiana River basin, a Mediterranean basin with numerous seasonal rivers. Due to the geographical location of this basin and its marked seasonality, the ecosystem of the Guadiana is very vulnerable to climate change.

**Methodology:** The metacommunity of fish, macroinvertebrates, macrophytes and diatoms was studied, analysing their metacommunity structure independently (for each group of organisms separately) and globally (using the data, as a whole, of the 4 groups of organisms). This allows

us to know how climate change will not only affect the global metacommunity itself, but also each group of organisms independently.

**WFD:** Due to the monitoring programs of the Hydrographic Confederations that are carried out in compliance with the WFD, the information on these four groups of organisms is obtained systematically, so that this type of study does not require an extra effort and could be carried out in the rest of the basins.

**Results:** Due to the fact that the most limiting factor in the study basin is seasonality, drought periods, the metacommunity formed by diatoms alone, macroinvertebrates alone, macrophytes alone, and the metacommunity formed by the 4 groups as a whole, show a Clementsian structure, that it is competition that structures the communities and that they are relatively isolated from each other. However, for individual fish we find a Gleasonian structure, i.e., the composition varies rather in response to abiotic factors, so that the different taxa coexist according to similarities in tolerances or requirements.

This means that, although there is physical-chemical heterogeneity, which acts as an environmental filter especially in the case of fish, it is, above all, interspecific competition that probably structures the different communities.

**Climate Change Effect:** Is expected in the Mediterranean the habitat fragmentation, with increasingly smaller and more distant habitats, favoring an even more marked clementsian structure. In addition, due to the expected lower number of refuges during the dry season due to its increase in frequency, severity and intensity, the number of refuges during the dry season is expected to decrease.

This translate into greater difficulty for migrations, increased competition for resources and space, reduced gene flow, resulting in populations that are more vulnerable to extinction.

**Conclusion:** Even more isolated communities from each other are expected, vulnerable to extinction and concentrated in smaller and smaller spaces due to habitat fragmentation, which will increase the increasingly limiting intracommunity competition for resources. Changes in diversity, taxon composition and metacommunity stability are expected.

In addition, the Guadiana is home to a large number of endemic species that will be vulnerable to extinction, which would mean a loss not only at the local or regional level, but also at the global level.

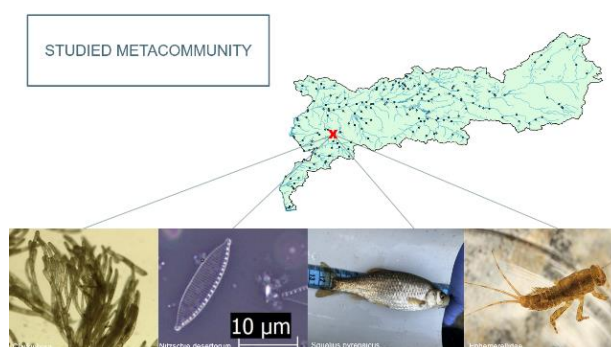


Figure 6: Studied metacommunity - Guadiana Basin



## PARTICIPANTS' WORK DURING THE WORKSHOP

*For each 'part' of the workshop, there was a time for participation, enabling the workshop audience to discuss local issues and work on future prospects.*

### Part 1: River management and climate change nowadays

*First, the participants (divided into 2 groups) were asked to state where they were from. This introductory exercise highlighted the significant diversity of climatic contexts where they manage watersheds.*

*Secondly, workshop participants described the effects of climate change currently being observed in their watersheds. These effects may be located in different parts of the catchment and affect different activities. **The impact of climate change** is therefore already present in the various components of the watershed and the different activities (energy, transport, agriculture, etc.) that are found in the basins.*



Figure 7: Time for public participation

Here are a few examples given by participants:

- Intensification of **drought periods**
- More **unpredictable** climate patterns
- **Green blooming** (with intensive farming) and degradation of water quality
- **Reduced rainfall**
- Increased **water temperatures** (with negative impact on fish migration)
- **Floods** in cities
- More **forest fires**

- More and more **intermittent streams**
- Increased **erosion**
- **Difficult exchanges** between water resource managers and basin stakeholders (farmers & general public/environmental managers; energy sector/environmental managers etc.).
- Increase in both **high discharge** levels in winter/spring and low discharge levels in summer/autumns.

These examples confirm that the impacts of climate change are already very significant in Europe, posing problems for water resource managers. In terms of solutions, a number of points were highlighted. First of all, **nature-based solutions** are clearly a lever put forward by participants. Some solutions expressed by participants:

- Nature Based Solutions, sponge facilities/landscape (green areas, green roofs...)
- Restore riparian vegetation/wetlands
- Improve lateral connectivity of river with (former) floodplains and lakes...
- Sustainable urban drainage system

More generally, the importance of **watershed management** in all its dimensions, and the importance of **land management** are emphasized:

- Modifying small-scale land management
- Reduce land consumption
- Increase water storage capacities in floodplains
- Restore ecological continuity (aquatic species must be able to migrate upstream).

Finally, more **cross-cutting subjects** remain essential:

- Increase funding
- Develop an integrated approach
- Strengthen regulations.

These observed impacts encouraged exchanges and the sharing of experiences on solutions implemented or to be implemented to limit the impact of climate change on rivers and watersheds.

Finally, **some gaps** were highlighted by participants:

- **Lack of understanding** of NBS benefits
- Integrate **flash flood strategy** in WFD
- Difficult to bring the **NBS issue to the national level**
- **Governance** issues.

In conclusion, the impacts of climate change in Europe are already causing major problems for watershed management in Europe. Solutions exist to adapt to or reduce the impacts of climate change. **Nature-based solutions** appear to be an essential lever, even if deployment and implementation will require more cross-functional changes with an integrated approach. Finally, there are actions to be taken to improve these solutions, to objectify the effectiveness of NBS...

## PART 2: Adapting River management to climate change



Figure 8: EURO-INBO 2035 poster

*This second discussion looked ahead to 2035. After an overview of the current situation and the impact of climate change on our rivers, participants were asked to propose an agenda for a EURO-INBO 2035 workshop on river management. This forward-looking exercise highlighted the participants' vision of these issues. Below are the main ideas put forward by the participants.*

*List of topics proposed by participants for Euro-INBO in 2035:*

- Food and International **conflicts for food**
- Having different **food systems**
- **Artificial intelligence** to track pollutants for each farm → Taxes
- **Water uses?** Hidden uses for water
- **Collaboration** to avoid conflict
- **Water diplomacy**, management between countries
- **Nature** by design → inspiration
- **Monitoring**: Emergence of DNA techniques
- **Better monitoring** doesn't mean better water quality
- Managing **extremes**
- Planning **land use** (NBS)



- *Positive **land use management***
- *Understand the **value of intact water***
- ***Water footprint***
- *Hydrological cycles, **green water***

This forward-looking exercise highlighted a number of key issues for participants in the years ahead. We can also see that water and its management could be at the heart of more **cross-cutting issues** such as **food, conflict management, regional planning...**

It is anticipated that certain more "traditional" subjects (e.g. monitoring) will still be on the agenda, but will rely more on new technologies (AI, DNA technics, etc.).

See you in 2035 to find out if these forecasts are confirmed!

## CONCLUSION

This workshop and the active participation observed underline the importance of the subject for water resource managers throughout Europe. River management is at the heart of the WFD, but also of many European policies.

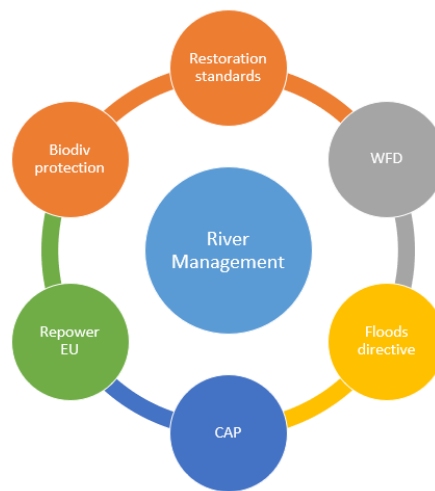


Figure 9: Rivers, at the heart of several regulations

Climate change is already putting considerable **pressure on rivers** and on the management of aquatic environments. This pressure is set to increase in the years ahead. Sharing experience between river managers is essential if we are to find solutions to adapt and limit the effects of climate change.

The speakers described the work underway in their catchment areas to improve the quality of water resources and promote biodiversity and ecosystems. This work of restoring watercourses, accompanied by monitoring work, is rapidly making it possible to observe favourable changes in the environment. For 2035, various issues were proposed by the workshop participants. If we want to see a positive future in the years ahead, it is essential to **speed up the implementation of solutions** such as those presented at this workshop (NBS). **Healthy ecosystems are a key to success in adapting to climate change.** The challenges are huge, so we need to act now to guarantee the quality of environments in a context where climatic constraints will be exacerbated.

## ANNEX

All presentations are available online: <https://www.riob.org/en/events/euro-inbo-2023>

Description
Program

### List of workshop speakers and links to presentations:

#### Introduction part:

Mr. Yannick Pochon, International Network of Basin Organizations (INBO) [y.pochon@oieau.fr](mailto:y.pochon@oieau.fr)

Dr. Eric Tardieu, International Network of Basin Organizations Secretariat - [e.tardieu@inbo-news.org](mailto:e.tardieu@inbo-news.org)

Mr Bart Fokkens, Associate Expert, European Center for River Restoration (ECRR) - [wetlandman@planet.nl](mailto:wetlandman@planet.nl)

- ✓ [Impact of Climate Change on Rivers and Wetlands](#)

Ms. Belén Piñol Gómez, River Restoration Engineer, Júcar Hydrographic Confederation (CHJ), Spain - [Belen.Pinyol@chj.es](mailto:Belen.Pinyol@chj.es)

[Mr. Emilio Real Llanderal](#), Head of Section of the Environmental Management Area, Júcar Hydrographic Confederation, Spain - [emilio.real@chj.es](mailto:emilio.real@chj.es)

- ✓ [Making rivers more resilient to climate change: Restoring native vegetation and removing obstacles](#)

## Part 1 “River management and climate change now”

Mrs. Irena Likar, Life Stržen Project Manager, Notranjski Regional Park, Republic of Slovenia - [irena.likar@notranjski-park.si](mailto:irena.likar@notranjski-park.si)

- ✓ [Watercourse restoration efforts at the intermittent Cerknica Lake in Slovenia](#)

Mr. Anders Iversen, National Water Coordinator, National Environment Agency, Norway - [anders.iversen@miljodir.no](mailto:anders.iversen@miljodir.no)

- ✓ [Multiple benefits of reopening rivers in Oslo](#)

## 2 “Adapting river management to climate change”

Mrs. Marlène Rolan-Meynard, IEngineer “Ecological restoration of aquatic ecosystems”, French Biodiversity Agency (OFB) [marlene.rolan-meynard@ofb.gouv.fr](mailto:marlene.rolan-meynard@ofb.gouv.fr) & Mr. Stéphane Jourdan, Hydrobiological Engineer, Artois-Picardie Water Agency, France - [s.jourdan@eau-artois-picardie.fr](mailto:s.jourdan@eau-artois-picardie.fr)

- ✓ [Following the efficiency of hydromorphological river restoration works \(HRRW\) - Focus on two yards in the Artois Picardie water basin. The Hem river ‘s « lab » and the Course river](#)

Mrs. Alejandra Tierno Cinque, Aquatic ecology expert, Eurofins Cavendish, Spain - [atierno@dnota.com](mailto:atierno@dnota.com)

- ✓ [Effects of Climate Change on the metacommunity structure of a Mediterranean basin](#)

For further information on this workshop:

Julie Magnier [j.magnier@oieau.fr](mailto:j.magnier@oieau.fr) & Simon Barreau [s.barreau@oieau.fr](mailto:s.barreau@oieau.fr)

### Acknowledgements:

We would like to take this opportunity to thank the people who made it possible to hold this workshop in Valencia, the various speakers and also the various participants.

The INBO organising team would like to thank ECRR and the OFB in particular for preparing this workshop.

Together with ECRR, INBO organised a webinar in 2023 on "Improving National River Continuity Restoration Policies for European Ecosystem-based River Management" (ECRR/STOWA and INBO) which you can review: <https://www.youtube.com/watch?v=g0AS6BffXIQ>

Thanks also to our Spanish hosts for the quality of their welcome in Valencia.



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