



Roma, 24 October 2017

# WATER RESOURCES AND AQUATIC ECOSYSTEMS MANAGEMENT IN A CHANGING CLIMATE - River restoration and integrated river management, the experience of CIRF and the HyMoCARES project

Andrea Goltara

Centro Italiano per la Riqualificazione Fluviale  
Viale Garibaldi 44/a 30173 Mestre (VE) - ITALIA  
[www.cirf.org](http://www.cirf.org), [info@cirf.org](mailto:info@cirf.org)



# CIRF – Italian Centre for River Restoration: since 1999 fostering more sustainable river management and ecological restoration



con il patrocinio di



Ministero dell' Ambiente e della Tutela del Territorio e del mare



Istituto Superiore per la Protezione e la Ricerca Ambientale



Autorità di bacino dei Fiumi Lin-Gangiano e Volturno



Autorità di bacino della Calabria



Consiglio Regionale della Calabria



Provincia di Reggio Calabria



Comune di Reggio Calabria



Provincia di Reggio Calabria



Associazione Nazionale Comuni Italiani



Associazione Nazionale Consorzi Gestione e Tutela del Territorio e Acque Irigue



Federazione Italiana Parchi e Riserve Naturali



Parco Nazionale dell'Aspromonte



Parco Nazionale del Pollino



Parco Nazionale della Sila



Riserve Naturali della Regione Calabria



Istituto Nazionale di Urbanistica



Ordine Nazionale dei Biologi



Università Mediterranea di Reggio Calabria

In collaborazione con



CIRF  
**LA RIQUALIFICAZIONE FLUVIALE IN ITALIA**

Linee guida, strumenti ed esperienze per gestire i corsi d'acqua e il territorio

Mazzanti Editore | CIRF Collezione CIRF  
Centro Italiano per la Riquilificazione Fluviale

CIRF  
Centro Italiano per la Riquilificazione Fluviale

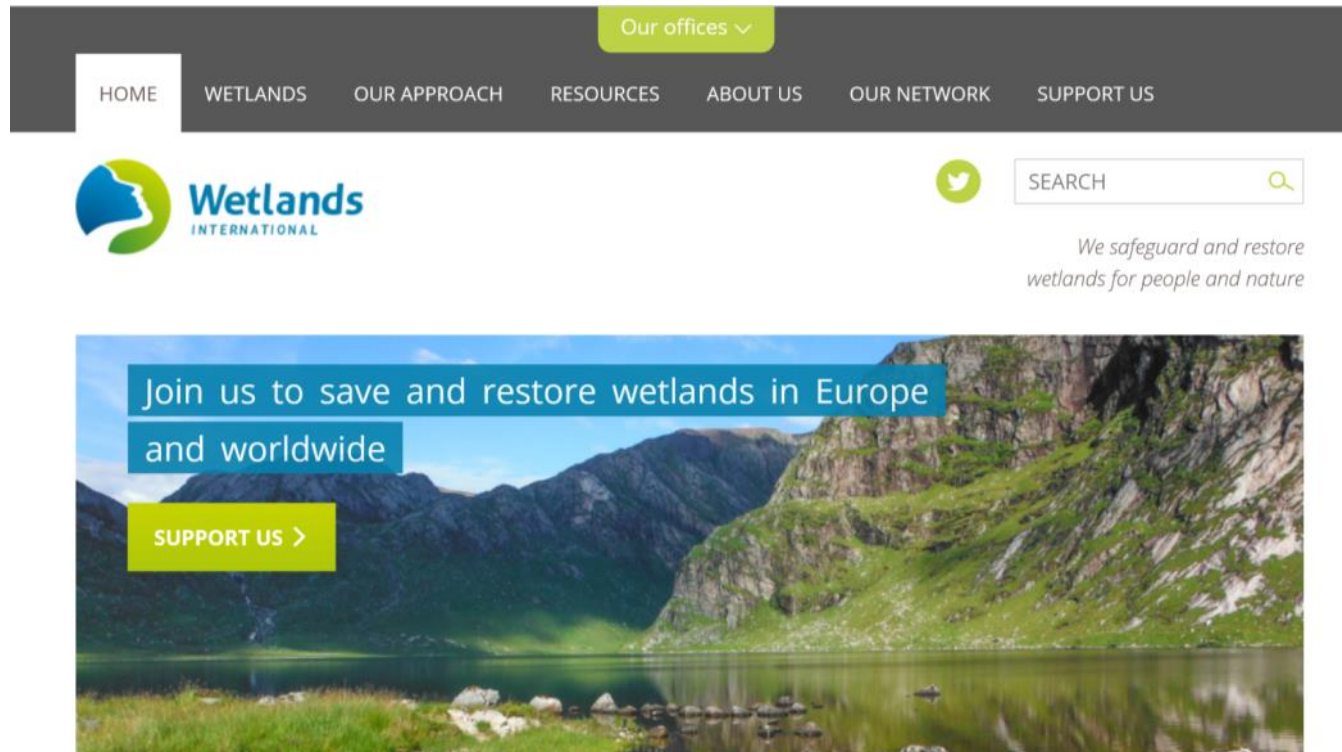
News In Primo Piano  
**Approvate dalla Giunta regionale le Linee guida per la riqualificazione integrata dei corsi d'acqua dell'Emilia-Romagna**

Approvate le "Linee guida per la riqualificazione integrata dei corsi d'acqua naturali dell'Emilia-Romagna", messe a punto con la collaborazione del Centro Italiano per la Riquilificazione Fluviale (CIRF) dalla Giunta della Regione Emilia Romagna. "Con questo documento - afferma ... >>>

Ampio interesse e partecipazione per il Workshop "PON GAS Ambiente" sulla riqualificazione fluviale in ambito mediterraneo  
COMUNICATO STAMPA CONGIUNTO MATTM - CIRF  
Si è tenuto a Reggio Calabria il 29 ottobre 2015 all'interno di Palazzo Campanella, sede del Consiglio Regionale della Calabria, il Workshop internazionale "PON GAS Ambiente" sul tema ... >>>

Documentazione (download)  
Cos'è la Riquilificazione Fluviale  
Come stanno i nostri fiumi  
Le cause del degrado

# PART OF EUROPEAN NETWORKS



<https://europe.wetlands.org/>



[www.ecrr.org](http://www.ecrr.org)

# Ecological RR: improving river ecological conditions

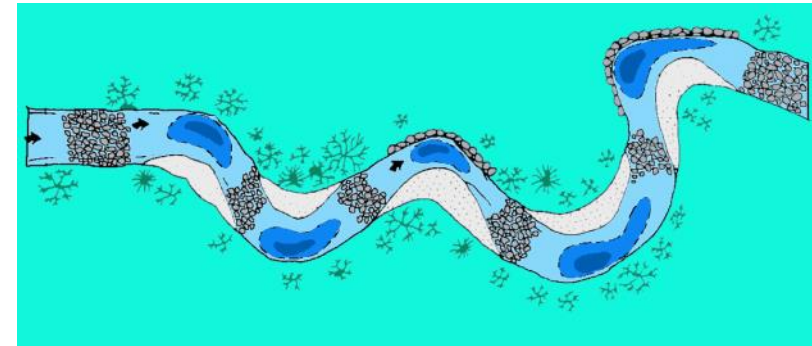
**Physico-chemical quality**



**Biological quality**

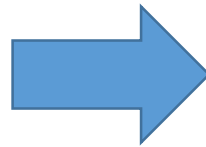


**Hydromorphological quality**



**...other quality elements beyond the WFD**

# Ecological RR provides crucial Ecosystem Services !



# A KEY ECOSYSTEM SERVICE: MITIGATION OF FLOOD RISK



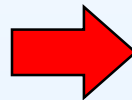
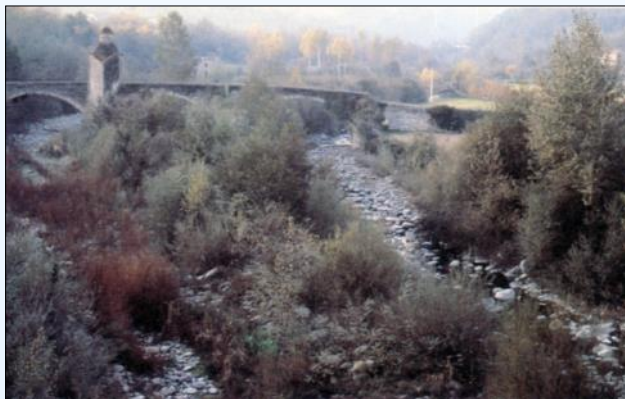
**Traditional "grey" flood protection approaches have been insufficient to ensure "safety", they have caused severe environmental impacts and have even contributed to increase risk at catchment scale**



**Riverbed dredging**

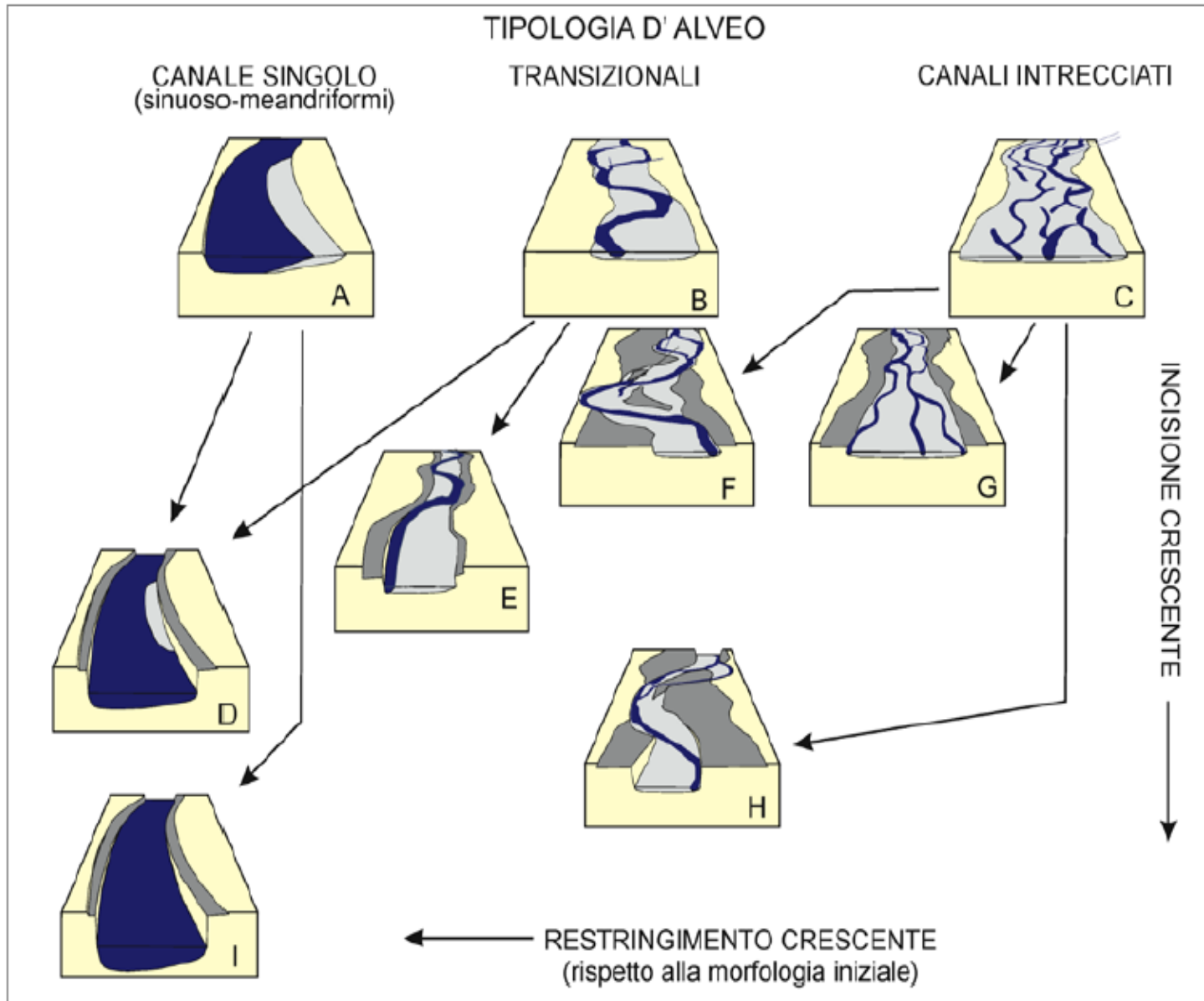


**Embankments, channelization, bank protections, riverbed stabilization**



**Systematic removal of riparian and instream vegetation**

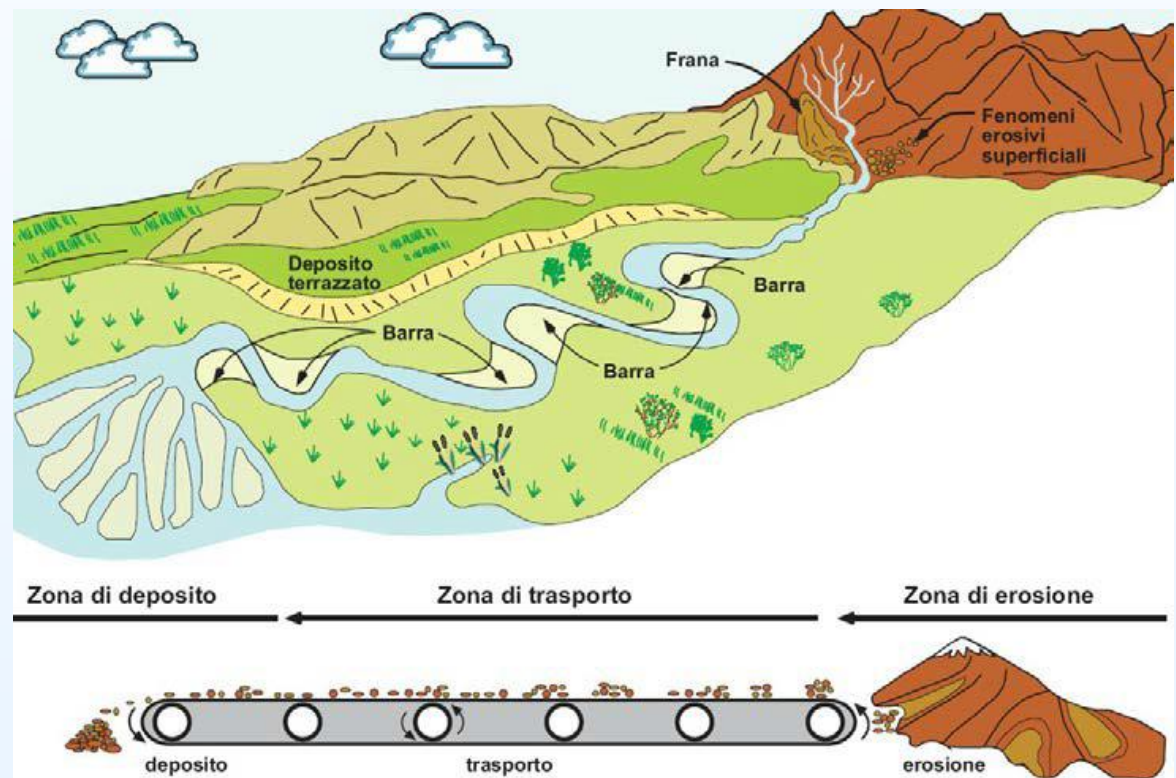
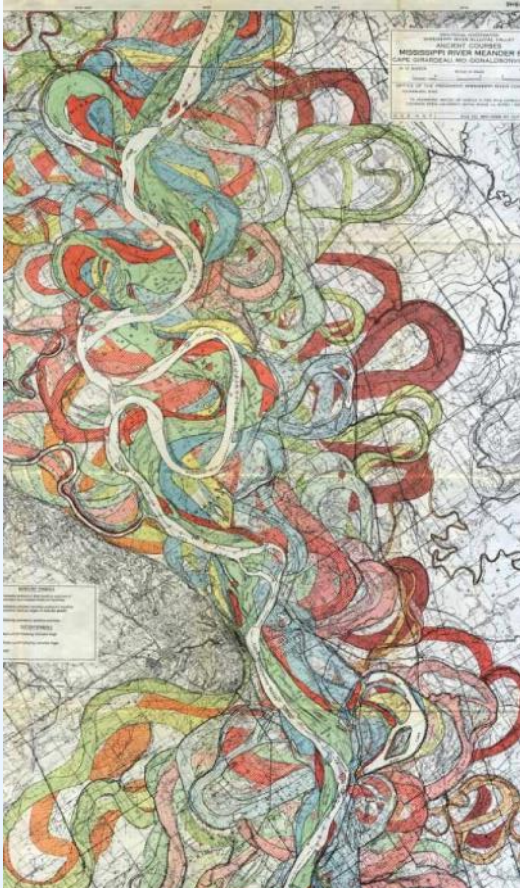
# Morphological alteration of riverbeds





# We need to integrate the traditional flood protection approach with nature-based solutions/river restoration

- Give back space to rivers / reconnect floodplains (and preserve those still connected!)
- Restore more natural river hydromorphological processes (ecological flows, sediment continuity...)



# Removal of embankments / bank defences / floodplain reconnection to restore natural retention areas



# Removal of embankments / bank defences / floodplain reconnection to restore natural retention areas



# Removal of dams /weirs and improved sediment management of reservoirs



Saint-Etienne du Vigan,  
river Allier, Loire basin, 1998

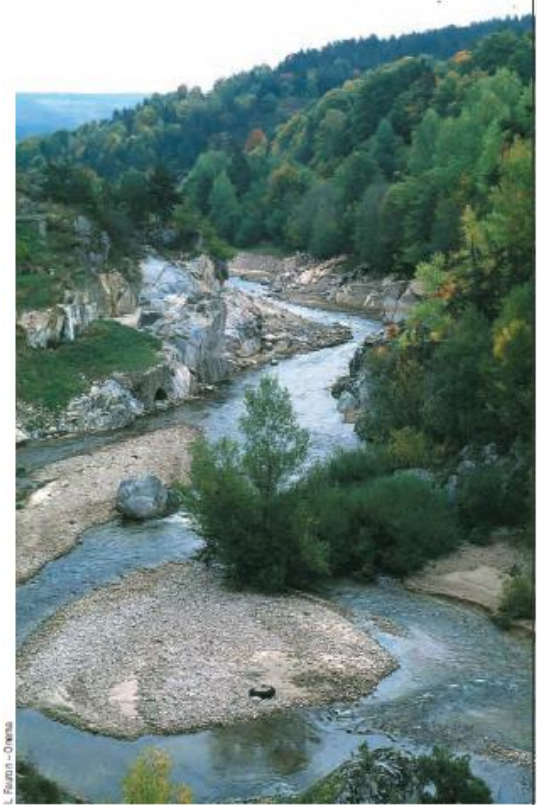


European Rivers Network, SOS Loire Vivante, Roberto Epple

*La démolition du barrage de Saint-Étienne-du-Vigan à la dynamite en juin 1998. Le cours d'eau est détourné en rive droite.*



European Rivers Network, SOS Loire Vivante, Roberto Epple



L. Fournier - O. Weiss

*Le site du barrage de Saint-Étienne-du-Vigan, à la fin des travaux de restauration, octobre 1998.*

## Sediment recharge:



# Deculverting



Ondaine (France):  
Deculverting as  
part as an urban  
restoration project  
in a former  
industrial area



# Important legislative advances on this in Italy

**2014 (Sblocca Italia)**  
**Obligation to give priority to integrated measures, reducing flood risk AND improving ecological conditions of river corridors**



**2015 (Collegato Ambientale)**  
**Obligation to manage sediments based upon management plans at catchment scale**



# Need to **monitor, evaluate and disseminate the benefits** in terms of ES and to **provide operational tools** to all subjects involved in river basin planning and management



## HyMoCARES

Alpine Rivers are working for Us

[Home](#)

[About](#)

[Case studies](#)

[Outputs](#)

[Learn more](#)

[Press releases](#)

[Contact](#)



Integrating the ES approach in planning and operational activities affecting river hydromorphological processes



## 13 CASE STUDIES

- 1) BUECH
- 2) DRAC
- 3) MAGGIA
- 4) ADIGE
- 5) AVISIO
- 6) ISARCO
- 7) TALVERA
- 8) WERTACH
- 9) LECH
- 10) DRAU
- 11) DRAVA
- 12) MUR
- 13) SALZACH
- ALPINE SPACE COOPERATION AREA



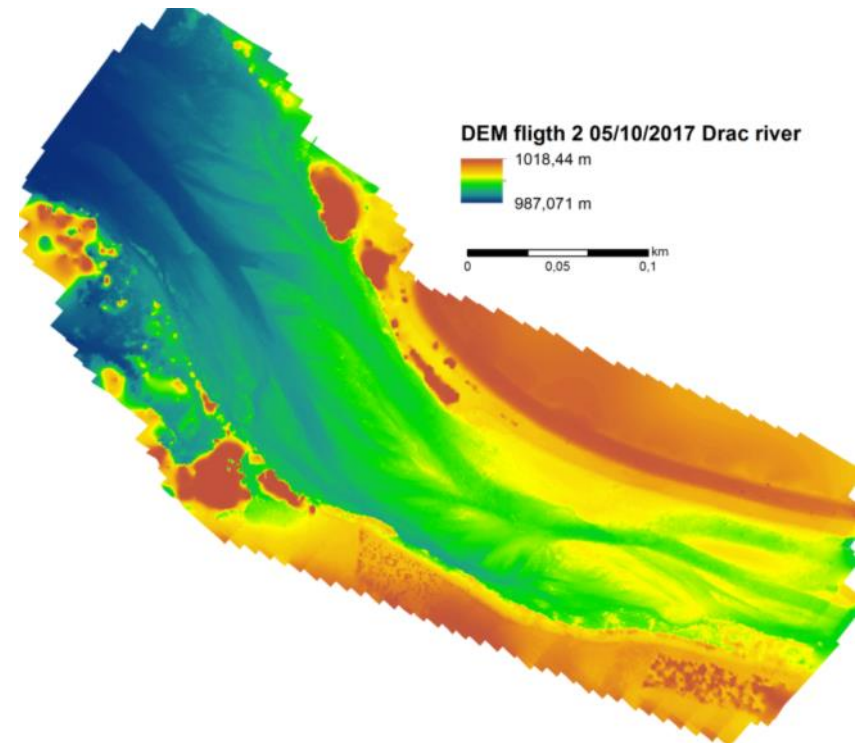




© CLEDA

- Largest gravel reintroduction in the EU: 450 000 m<sup>3</sup> (390 000 from adjacent alluvial terraces, 60 000 transported from other sources, mainly tributaries)
- Creation of a new wide and shallow channel, leaving the river free to recreate a braided morphology

Monitoring with several techniques and evaluation of effects also in terms of ES



- Mechanical reintroduction of gravel (berms)
- Flushing when  $Q > Q_{lim}$
- Monitoring and evaluation



# To know more... come to the mid-project workshop on 4 June 2018 at the ISRivers Conference – Lyon (France)



**I.S. Rivers** INTEGRATIVE SCIENCES RECHERCHES ET ACTIONS

3<sup>RD</sup> INTERNATIONAL CONFERENCE  
Integrative sciences and sustainable development of rivers

4 > 8 JUNE 2018 Lyon - FRANCE

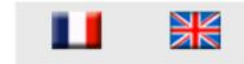
Presentation | Programme | Call for abstracts | Registration | Practical information | Scientific committee | Partners



**The call for abstracts is now launched!**

Submit your extended abstract by November 20<sup>th</sup>!

[ more + ]



**KEY DATES**

- **September 2017**  
Call for abstracts
- **20 November 2017**  
Extended abstract
- **February 2018**  
Selection notification
- **March 2018**  
Programme and registration

## About I.S.Rivers

The ambition of I.S.Rivers - **integrative sciences and sustainable development of rivers** - is to promote multidisciplinary approaches, to engage all stakeholders and to **build links to stimulate European and international collaborations between scientists and river managers**



Don't miss out the latest news!

 [Subscribe!](#)

...or to the 4th Italian Conference on River Restoration, 23-26 October 2018 – Bologna (Italy)



Roma, 24 October 2017

**THANKS FOR YOUR ATTENTION**

Andrea Goltara

Centro Italiano per la Riqualificazione Fluviale  
Viale Garibaldi 44/a 30173 Mestre (VE) - ITALIA  
[www.cirf.org](http://www.cirf.org), [info@cirf.org](mailto:info@cirf.org)

