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Adaptive Management of Barriers in European Rivers

A COLLABORATIVE PROJECT FOR GUIDANCE ON BARRIER LOCATION, REMOVAL AND MITIGATION IN EUROPE

WORLD FISH MIGRATION FOUNDATION

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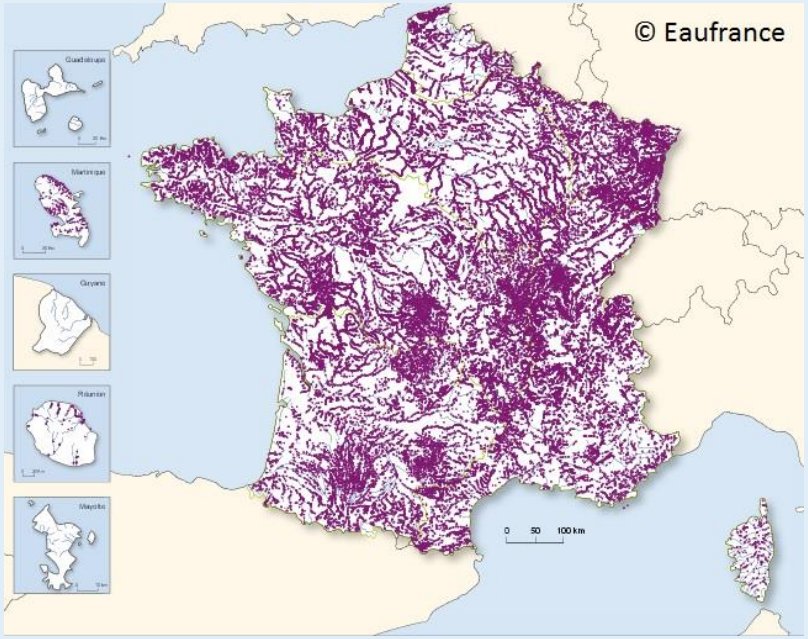
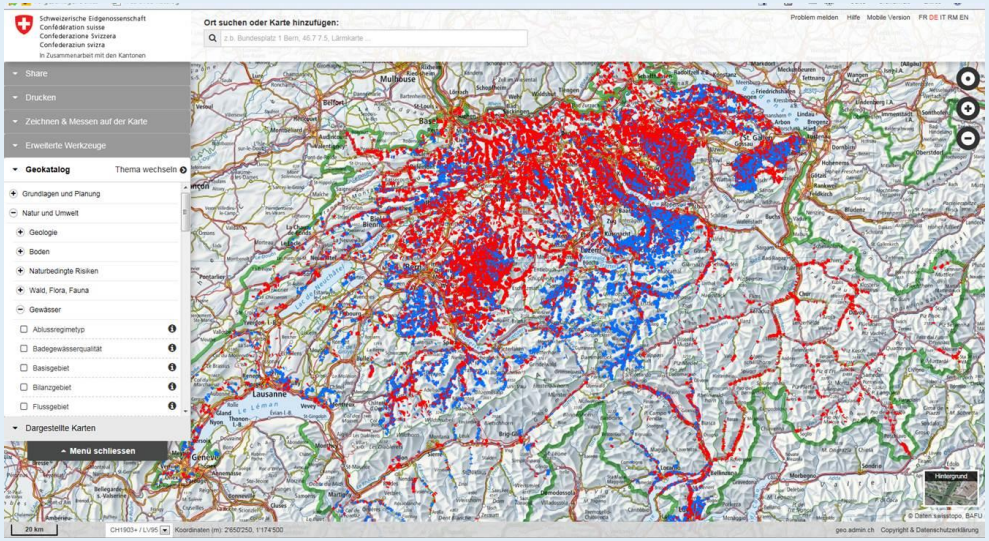
2nd Dam Removal Europe Workshop: Dam and weir removal in the urban environment - 25 Sept 2017 Birmingham, UK


Rivers
are important
to the world



Source: www.sandre.eaufrance.fr/atlascatalogue/

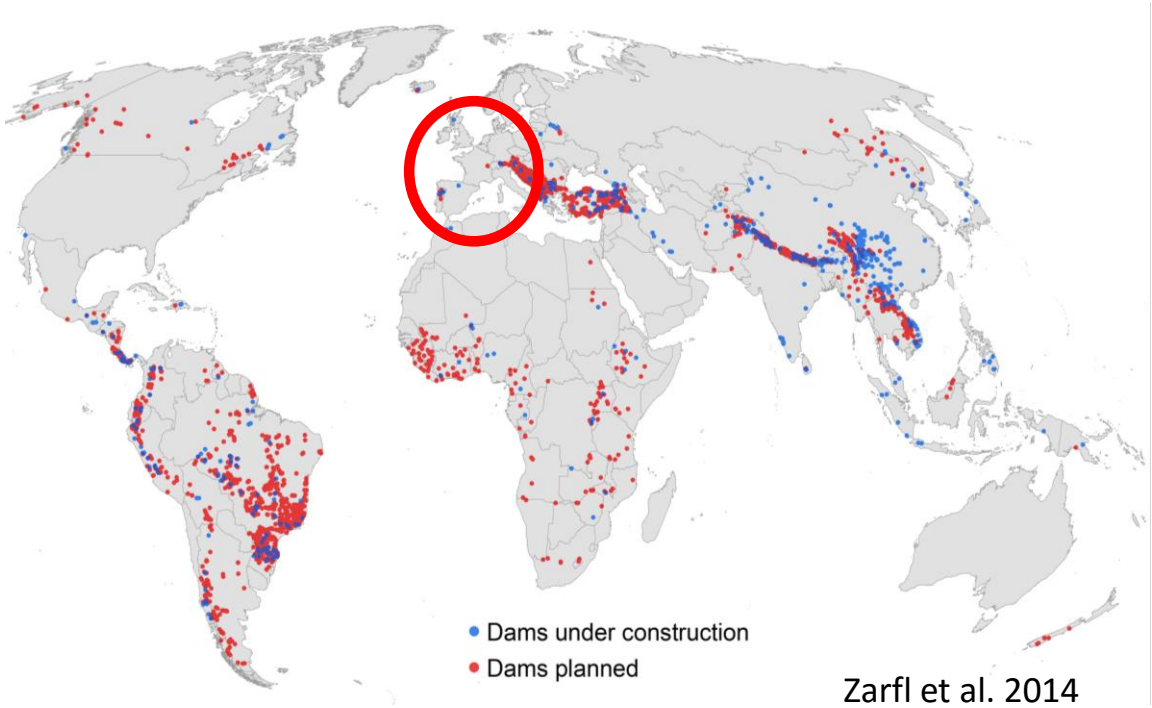


Source: https://map.geo.admin.ch/

Globally, Europe is the continent with the smallest number of completely unfragmented Large River Systems - just three rivers in northwestern Russia.
(Nilson, 2005)

Hydropower boom in Europe

- 2020 target of 20% energy from renewables
- Pumped Hydro-Storage (PHS) important for attenuating solar and wind electricity
- Expected investment of **€26 billion in PHS alone** between 2013 and 2020.

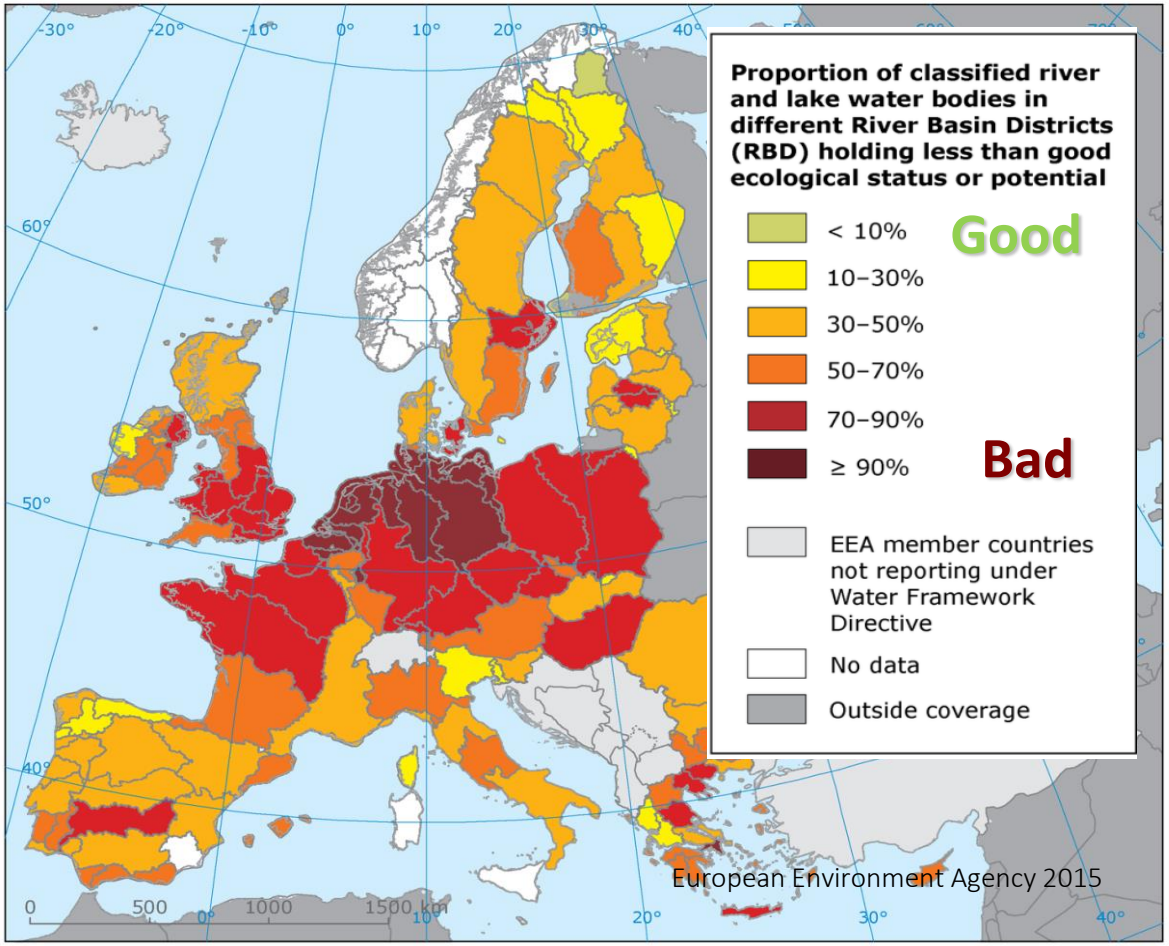


Zarfl et al. 2014

Resolving the connectivity challenge in EU

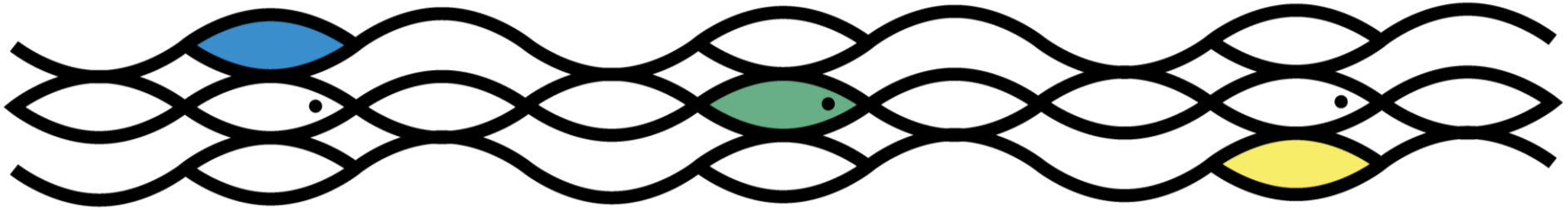
- Only half the surface waters of Europe have met the **WFD target for 2015** of good ecological status

Most failures due to fragmentation & habitat loss



Adaptive Management of Barriers in European Rivers

More effective restoration of river connectivity in Europe requires a shift towards **adaptive management of river barriers**, one that maximizes benefits and minimizes impacts



AMBER PARTNERS

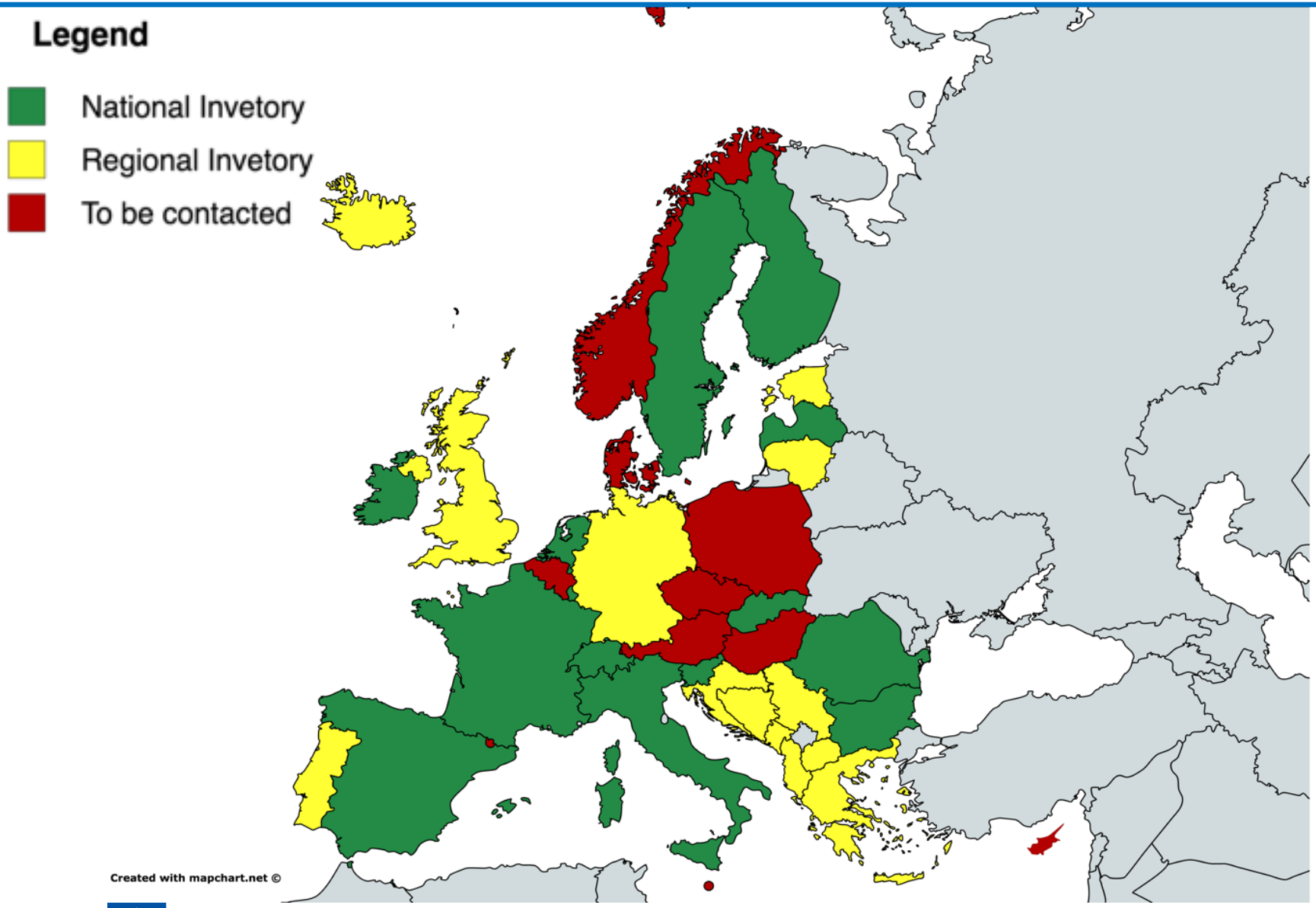
8 Universities - Swansea, Durham, Highlands & Islands, Southampton, Cork (Ireland), Oviedo (Spain), Milan (Italy), DTU (Denmark).

4 Industrial partners - hydropower – EDF (France), IBK (Germany), Innogy (Germany), Sydkraft (Sweden)

4 NGOs (WFMF (Netherlands), WWF (Switzerland), CNSS (France), AEMS (Spain)

4 Government organisations - IFI (Ireland), ERCE (Poland), SSIFI (Poland), Joint Research Centre (Italy)

WP1: European Atlas of Stream Barriers



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WP1: European Atlas of Stream Barriers

DIFFICULTIES

1. Information largely inaccessible to the majority of stakeholders
2. Regional data, national data or no data at all
3. Not always free
4. Barrier definition- Stream connectivity is poorly defined and criteria for restoration are often arbitrary and taxon specific
5. Data standarization- Information on stream barriers is fragmentary, uses different data standards




Compile and merge barrier survey records available for each member state, and agree on a common methodology for reporting and classification to produce the **first inventory of stream barriers across Europe.**

WP1: European Atlas of Stream Barriers

Table 1. Key parameters that we propose to be compiled for the ATLAS.

Key parameters	Definition
ATLAS_ID	New ID defined within AMBER
Source_ID	ID of the source (national, regional) database
URL	Link to data source. It can be, e.g.: the web address of the owner institution, the available web address of the national/regional DB
Country	EU country or EU area, e.g. Balkans, Danube...
X_coord	Latitude
Y_coord	Longitude
River	Name of the river
Basin	Name of river basin
Height	Barrier height (m), i.e. the vertical distance between the lowest point on the crest of the barrier and the lowest point in the original streambed
Type	Dam, weir, spillway, etc.
Year	Date of building (end)

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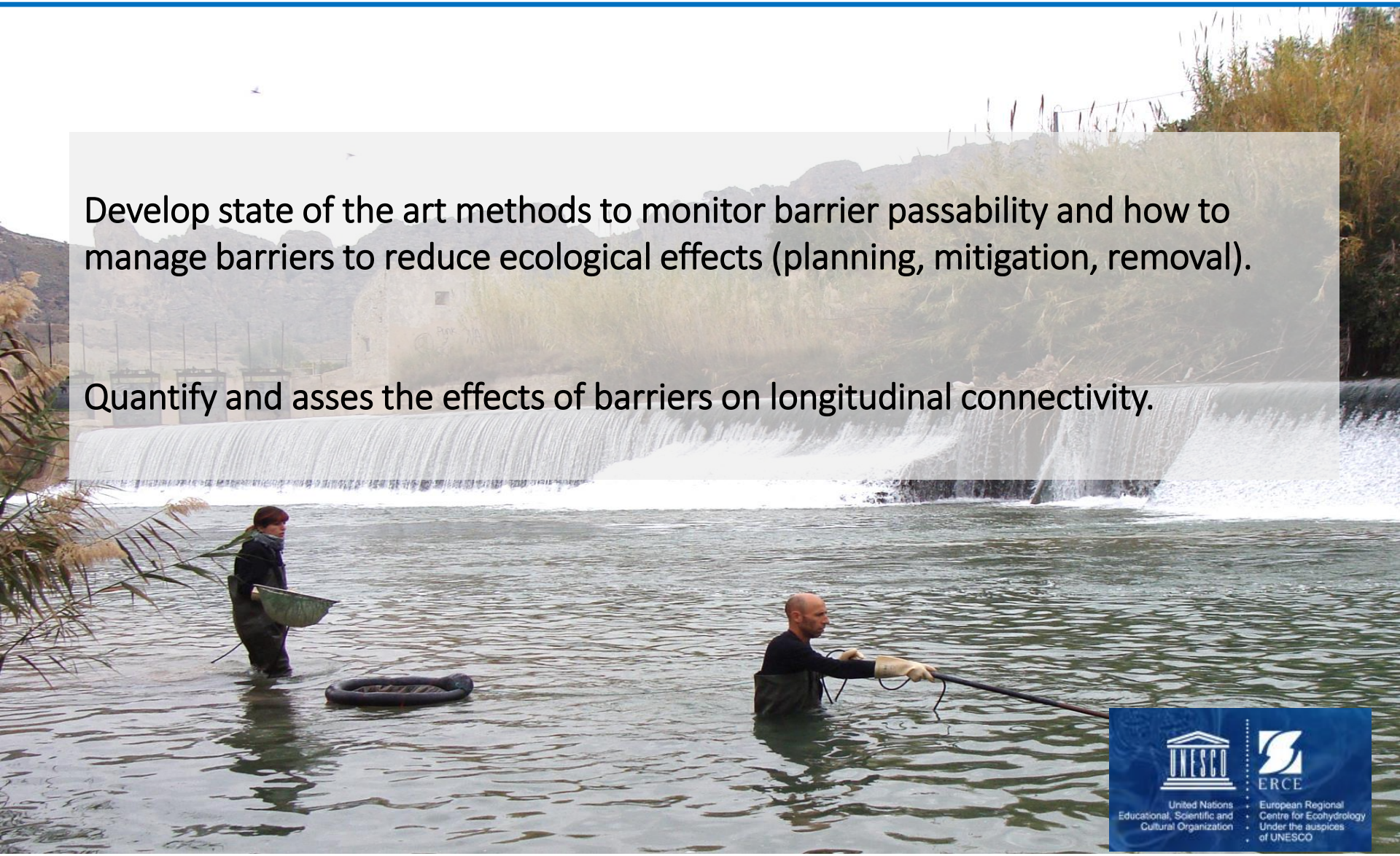
WP2: Impacts of Barriers

Develop state of the art methods to monitor barrier passability and how to manage barriers to reduce ecological effects (planning, mitigation, removal).

Quantify and asses the effects of barriers on longitudinal connectivity.



United Nations Educational, Scientific and Cultural Organization

ERCE European Regional Centre for Ecohydrology Under the auspices of UNESCO

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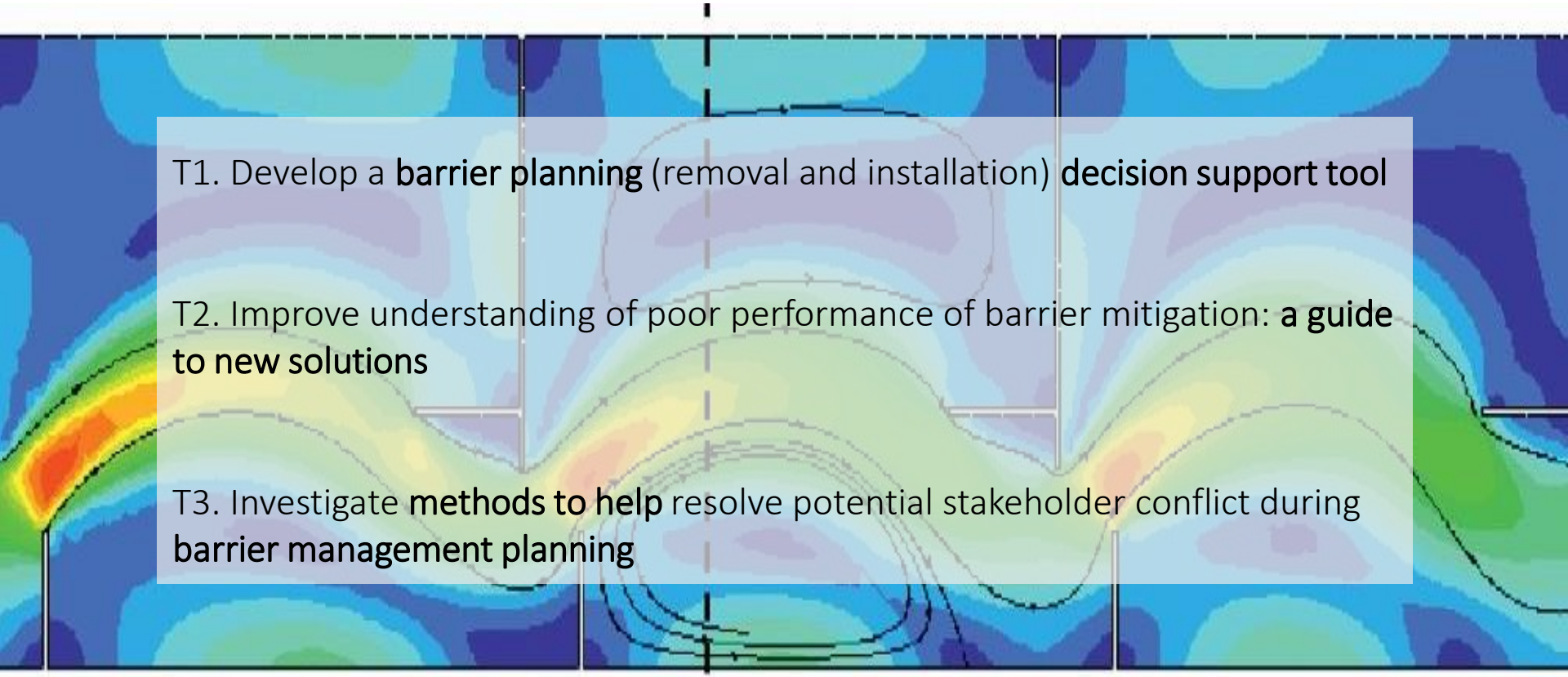
WP3: Decision Tools



T1. Develop a **barrier planning** (removal and installation) **decision support tool**

T2. Improve understanding of poor performance of barrier mitigation: **a guide to new solutions**

T3. Investigate **methods to help** resolve potential stakeholder conflict during **barrier management planning**

UNIVERSITY OF Southampton

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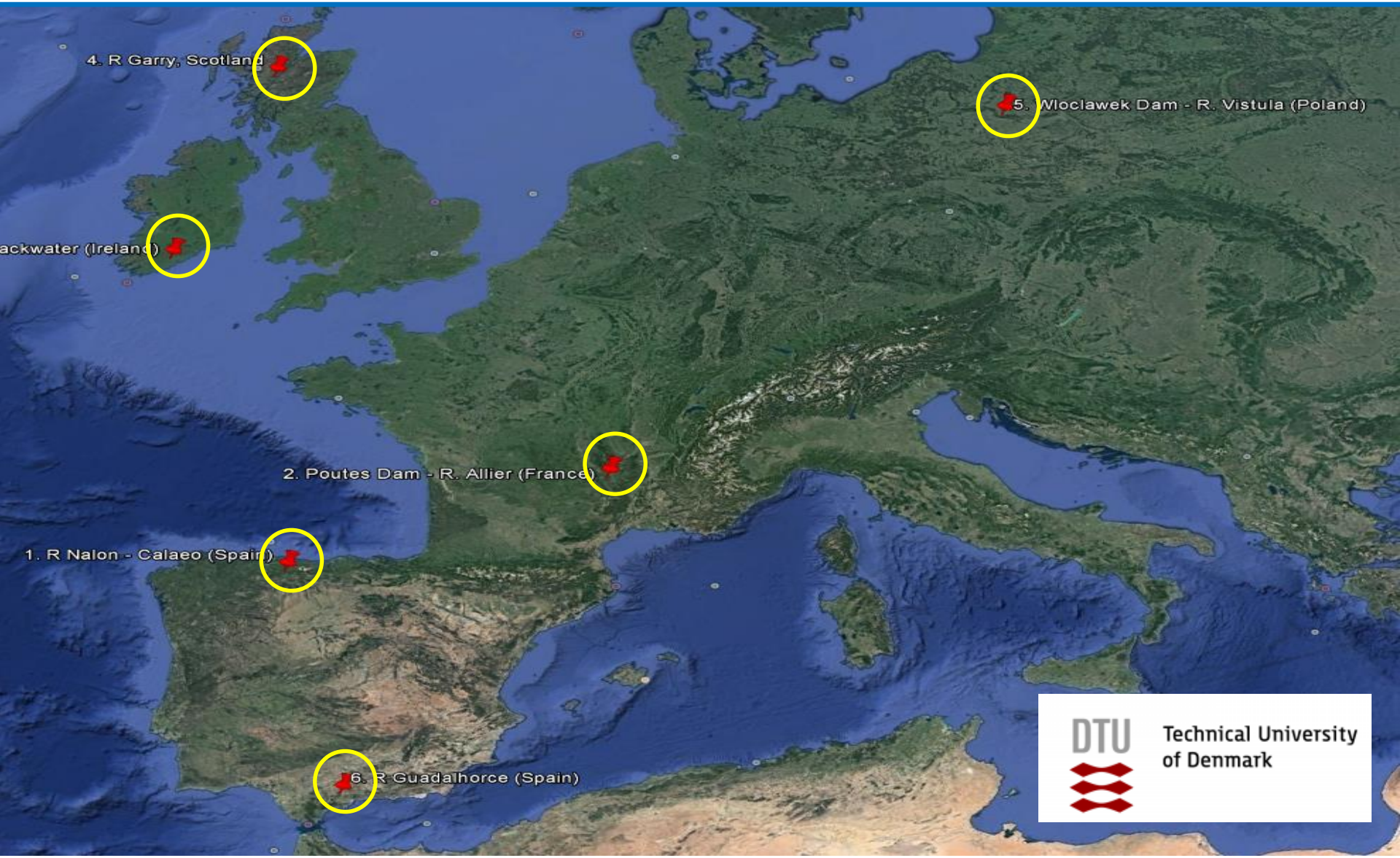
WP4: 6 Demonstrative Projects



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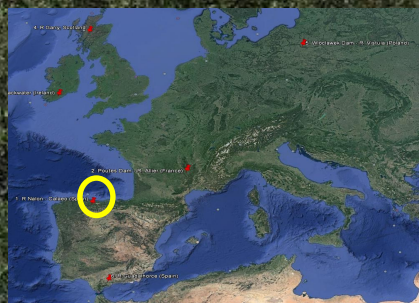
WP4: CASE 1 - Nalón River - Planned Caleao Dam



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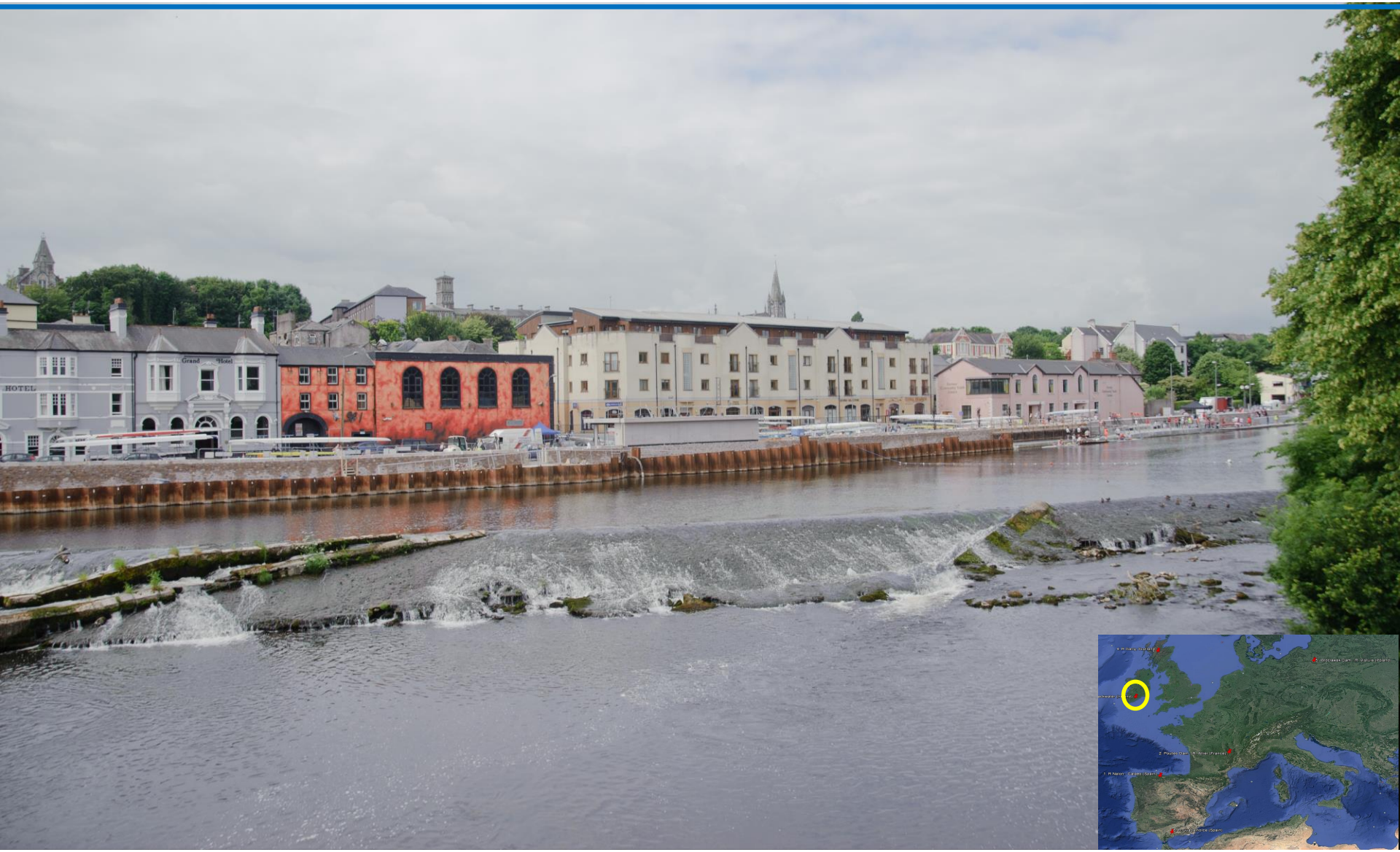
WP4: CASE 2- Allier River - Poutès Dam

WP4: CASE 3- Munster Blackwater River- Clondulane Weir



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WP4: CASE 4- River Garry (Scotland) - Loch Quoich Dam

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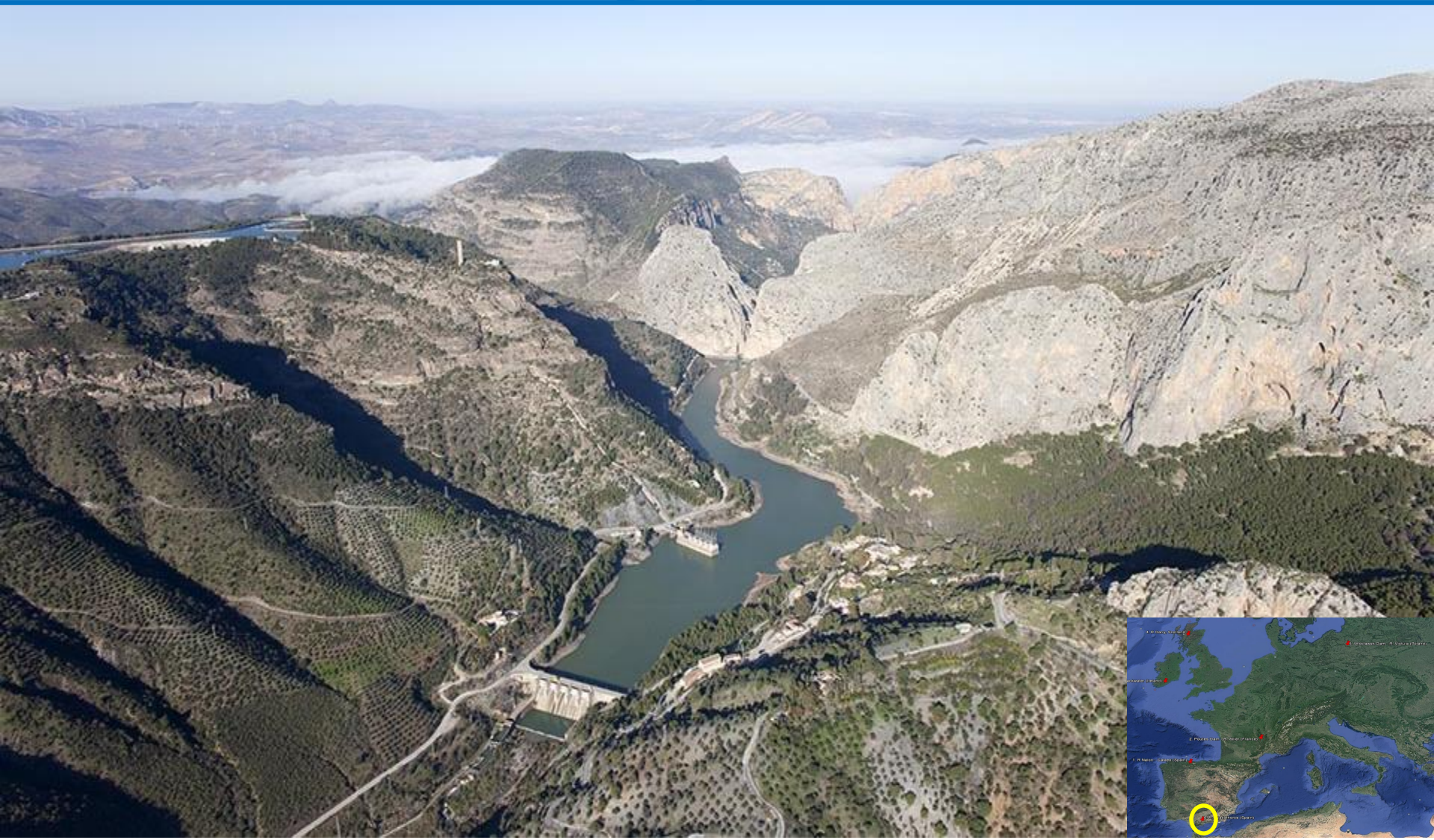
WP4: CASE 5-River Vistula - Włocławek Hydropower Dam

WP4: CASE 6 - Guadalhorce- Various dams including hydroelectric



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WP5: Communication, Dissemination and Public Engagement through Citizen Science

TARGET AUDIENCE

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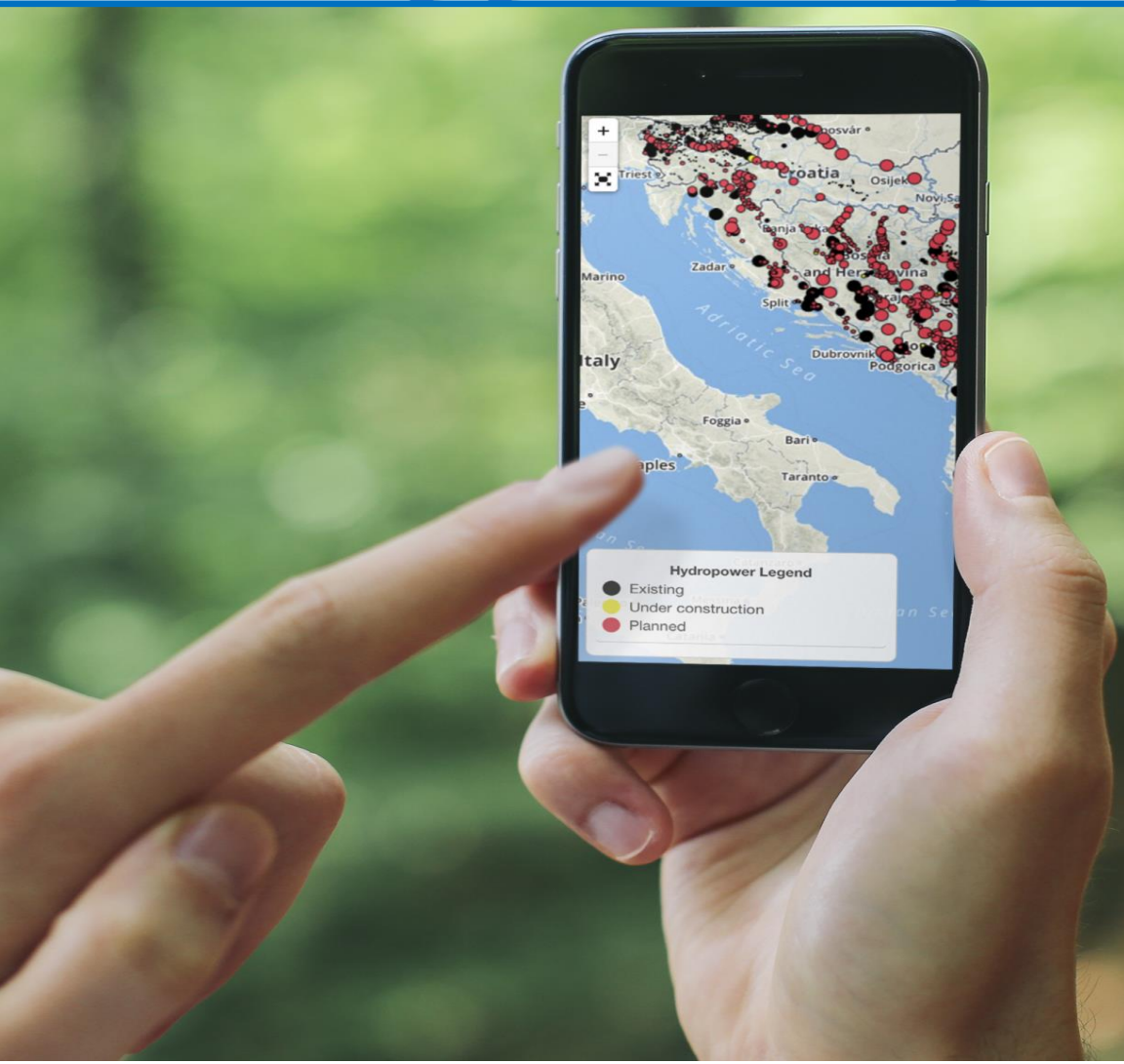
WP5: Communication, Dissemination and Public Engagement through Citizen Science



Website

Workshops

Newsletters

Social Media

AMBER network

Citizen Science App

Educational materials

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CONCLUSIONS

IMPROVING EUROPEAN STREAM CONNECTIVITY

ADAPTIVE BARRIER MANAGEMENT

WORKING TOGETHER

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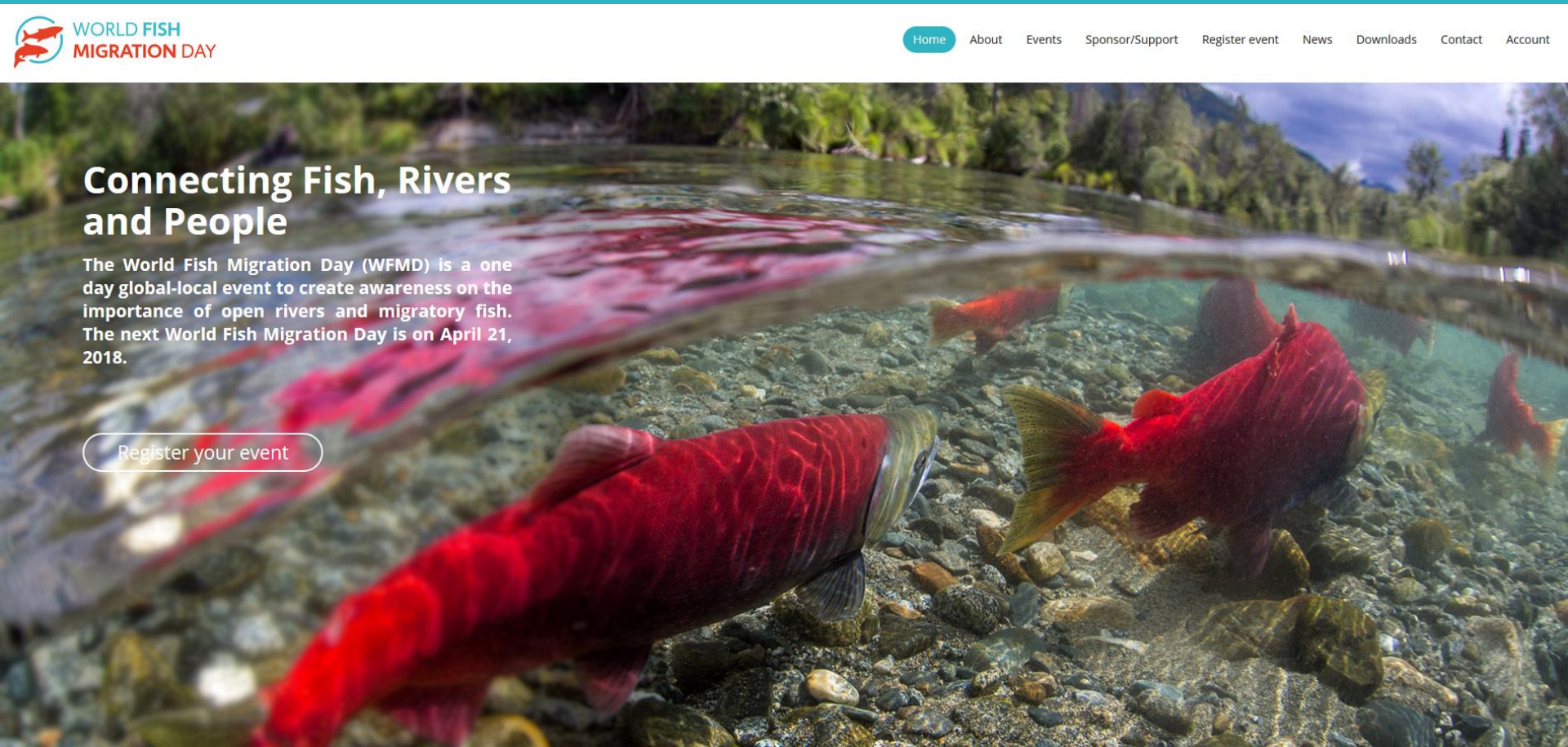
WORLD FISH MIGRATION DAY

21st April 2018

www.worldfishmigrationday.com



Going global

Creating awareness on a global scale

In 2016, we reached 177 more events than in 2014. The majority of the events were in Europe (228) and the USA (103), but there were also events from other countries; Mongolia, Gambia, Iceland, Ecuador and Papua New Guinea to name a few. Our goals for 2018 are to increase the impact and double the number of events to involve at least 75 countries around the globe, particularly increasing the number of events in developing areas in Africa, South America and Asia, where a major expansion of hydropower and dam development is proposed. It is critical that citizens, companies, governments, financiers and other organizations in these areas are well informed about migratory fish and the impacts they face.

450 Events
63 countries
82.000 visitors to events
2,000 organizations involved
70.000.000 people reached worldwide
+15.000.000 people reached on social media

The Nature Conservancy
Protecting nature. Preserving life.

LINKIT CONSULT

FFSG
Freshwater Fish Specialist Group

WWF

WORLD FISH MIGRATION FOUNDATION

Hollands Noorderkwartier

Waterschap
Amstel, Gooi en Vecht

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Thank you

WORLD FISH MIGRATION FOUNDATION

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