



THE PEER REVIEW ON RIVER RESTORATION IN THE JÚCAR RIVER BASIN AUTHORITY

“PEER REVIEW” PROJECT FOR WFD IMPLEMENTATION



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MENBO+JRBA

Lourdes, October 2016



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- Background information and overall objectives
- Expected results
- Necessary documents for the review
- Final report and conclusions of the Peer-Review

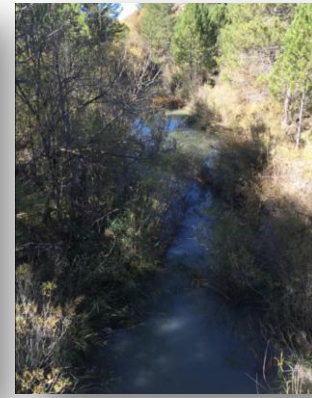
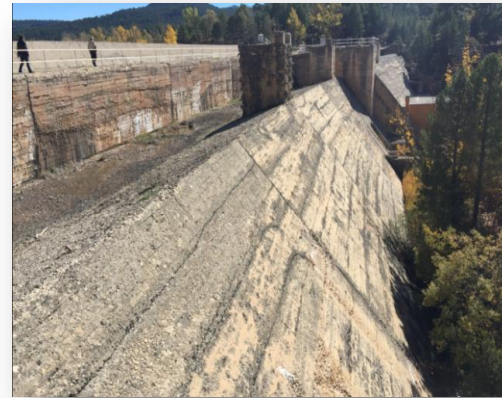
The Júcar River Basin District

- Differently from other Spanish river basin districts (Ebro, Tagus, Duero, Guadiana, Guadalquivir and Segura), it presents the singularity of having several river basins of certain importance, such as the Turia, Mijares, Palanciá, Vinalopó and Serpis, apart from the Júcar itself, which names the district and many small courses flowing into the Mediterranean.



Objectives of the Peer-Review

- In a significant number of water bodies biological indicators do not reach the environmental objectives.
- The cause could be the hydro-morphological alterations.
- Analysis of the continuity and its impact on the scope of the environmental objectives



Views “up and downstream” from
the **“Toba” reservoir** in Júcar river



Dam above the **reservoir of Regajo**

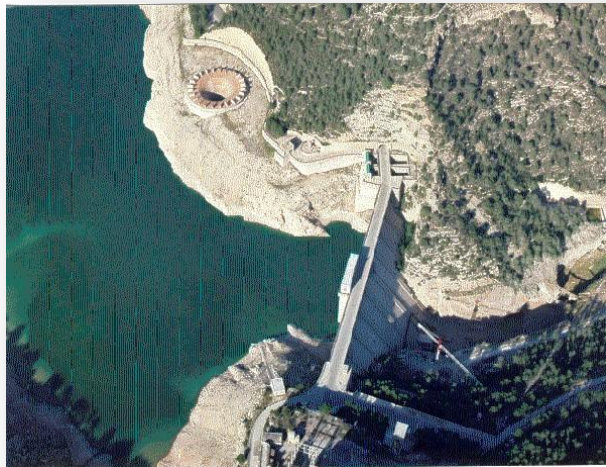
Hydro-morphological pressures



1. Alarcón



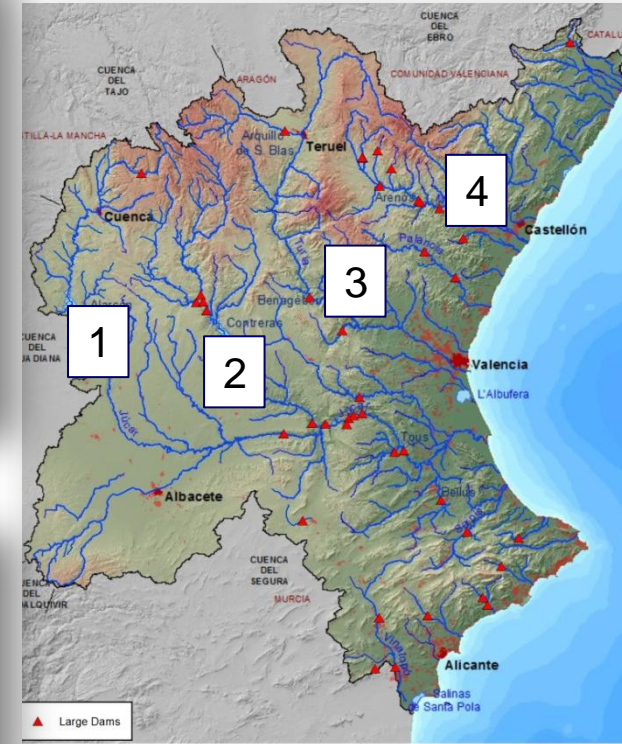
2. Contreras



3. Benagéber



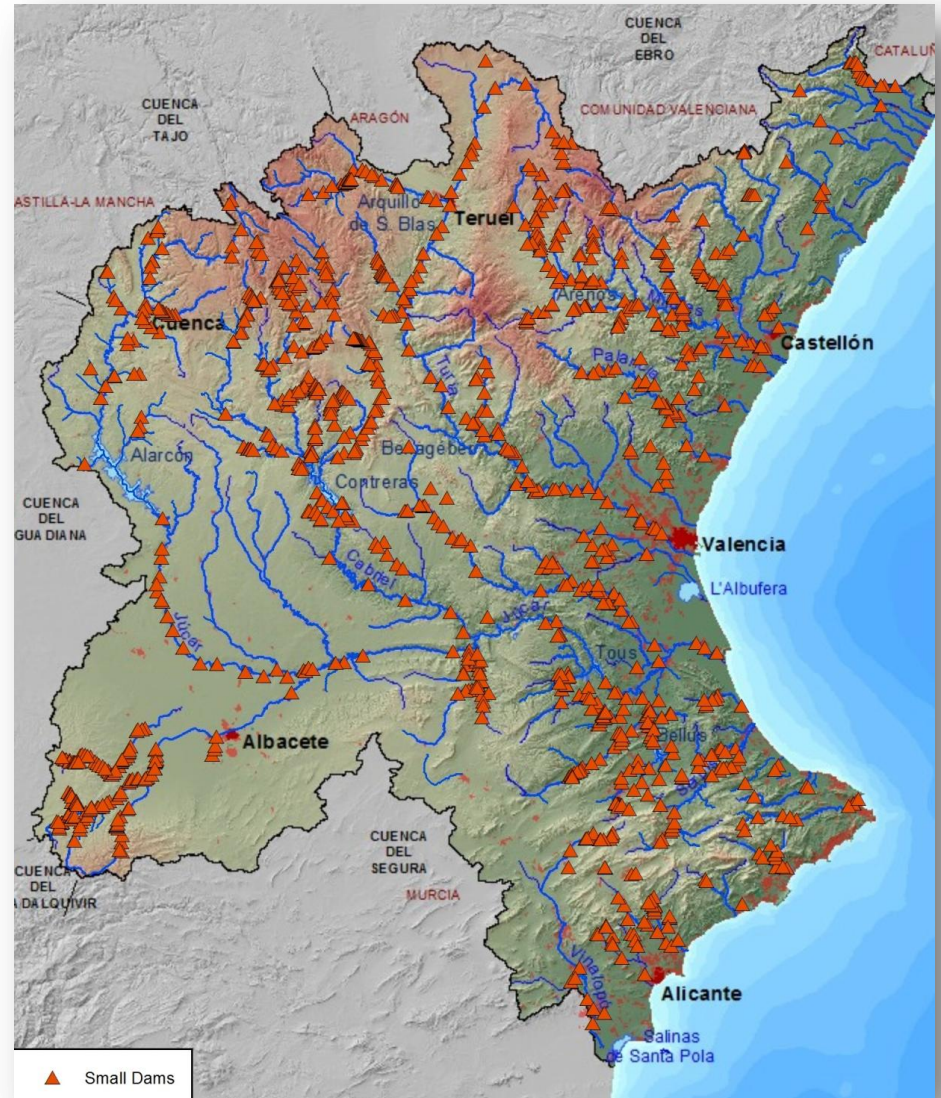
4. Arenós



52 big dams
(height > 10 m).

Hydromorphological pressures

- There are more than 1.000 weirs inventoried with heights between 1,5-2 m.
- Impassable infrastructures for aquatic species
- Main use for hydro-power production and agriculture.



Source: SIA-JÚCAR



Expected results

- Development of a methodology for prioritising actions in weirs based on the achievement of the environmental objectives required by the Water Framework Directive (WFD), and mainly focusing on the consecution of the biological and the hydro-morphological status.
- Experiences in the development and implementation of connectivity programmes, adopted criteria and evaluation of the derived ecological effects in rivers. Comparative contrast for the implementation in the Júcar River Basin District (JRBD).

I. DISPOSICIONES GENERALES

MINISTERIO DE AGRICULTURA, ALIMENTACIÓN Y MEDIO AMBIENTE

439 *Real Decreto 1/2016, de 8 de enero, por el que se aprueba la revisión de los Planes Hidrológicos de las demarcaciones hidrográficas del Centenario Occidental, Guadquivir, Guadalequivir, Guadalequivir, Segura y Júcar; y de la parte específica de las demarcaciones hidrográficas del Centenario Oriental, Mito-Sil, Duero, Tago, Guadiana y Girona.*

I

La planificación hidrológica que se venía realizando en nuestro país y que se ha reconocido, junto con el principio de unidad de gestión en la cuenca hidrográfica, como una de las grandes aportaciones a la política del agua realizada por España, ha tenido que ampliar su concepto para recoger, en cuanto a la protección de las aguas y de los ecosistemas a ellas asociados, el enfoque y los contenidos exigidos por la Directiva 2000/60/CE, de 23 de octubre, por la que se establece un marco comunitario de actuación en el ámbito de la política de aguas, denominada en adelante Directiva Marco del Agua (DMA). Con ello, la planificación hidrológica española acorda ahora una visión

PLAN HIDROLÓGICO DE LA DEMARCACIÓN HIDROGRÁFICA DEL JÚCAR

MEMORIA

Ciclo de planificación hidrológica 2015 - 2021

Confederación Hidrográfica del Júcar



Diciembre de 2015

- The Júcar River Basin Management Plan (cycle 2015-2021) was approved by the **Royal Decree 1/2016.**

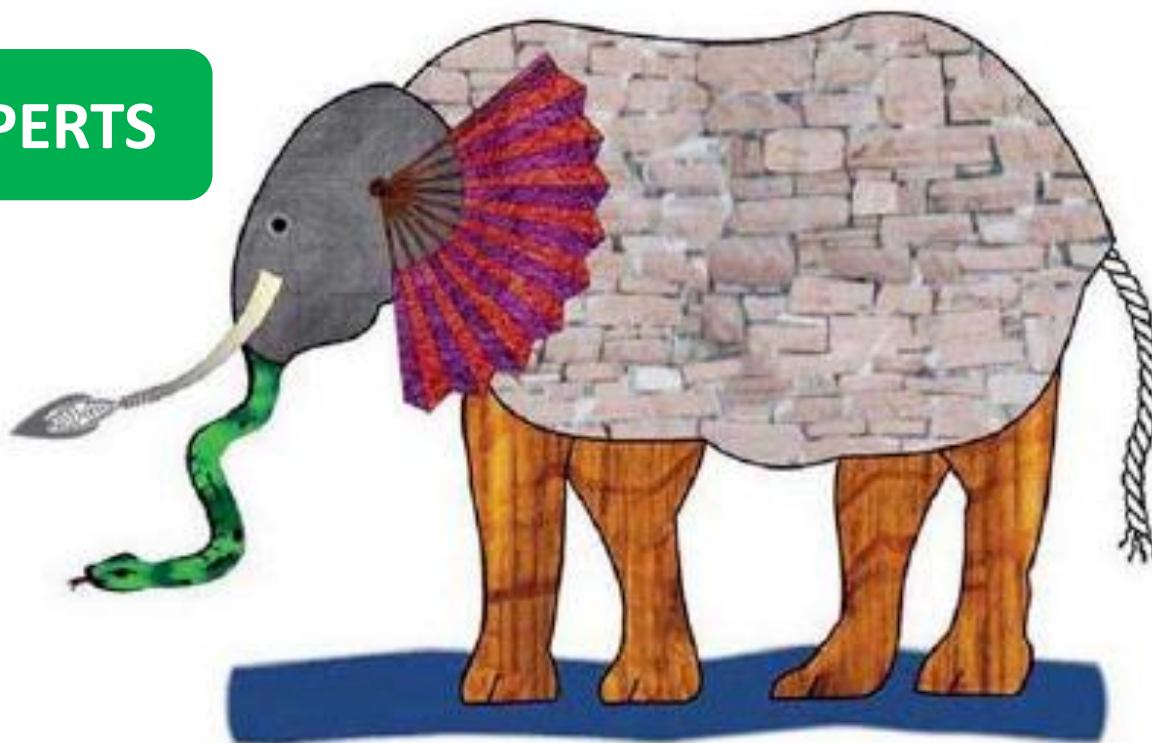
- General objectives of the Hydrological planning (art. 40 TRLA):

- ✓ Achieve the good status and the adequate protection of water bodies
- ✓ Satisfaction of water demands
- ✓ Harmonisation of regional and sectoral development

UNIVERSITIES

RIVER BASINS Authorities

EU EXPERTS



NGOs

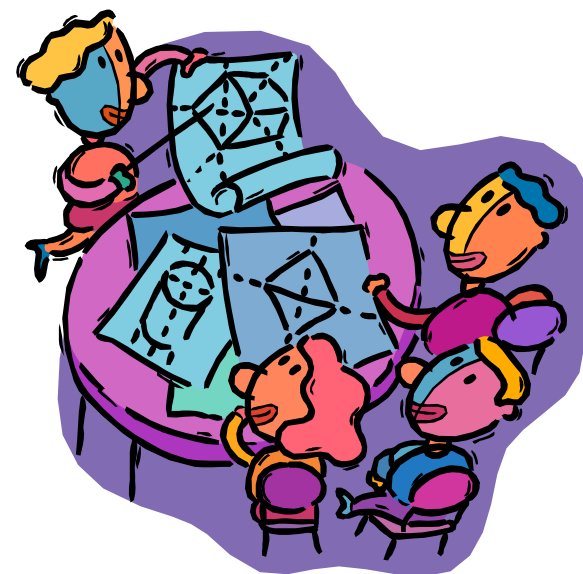
REGIONAL Authorities



- **Jukka Jormola**, Finnish Environment Institute
- **Andrea Nardini**, Centro Italiano per la Riqualificazione fluviale (CIRF)

Detailed mission schedule

- Experiences
- Field trip
- Experts Report

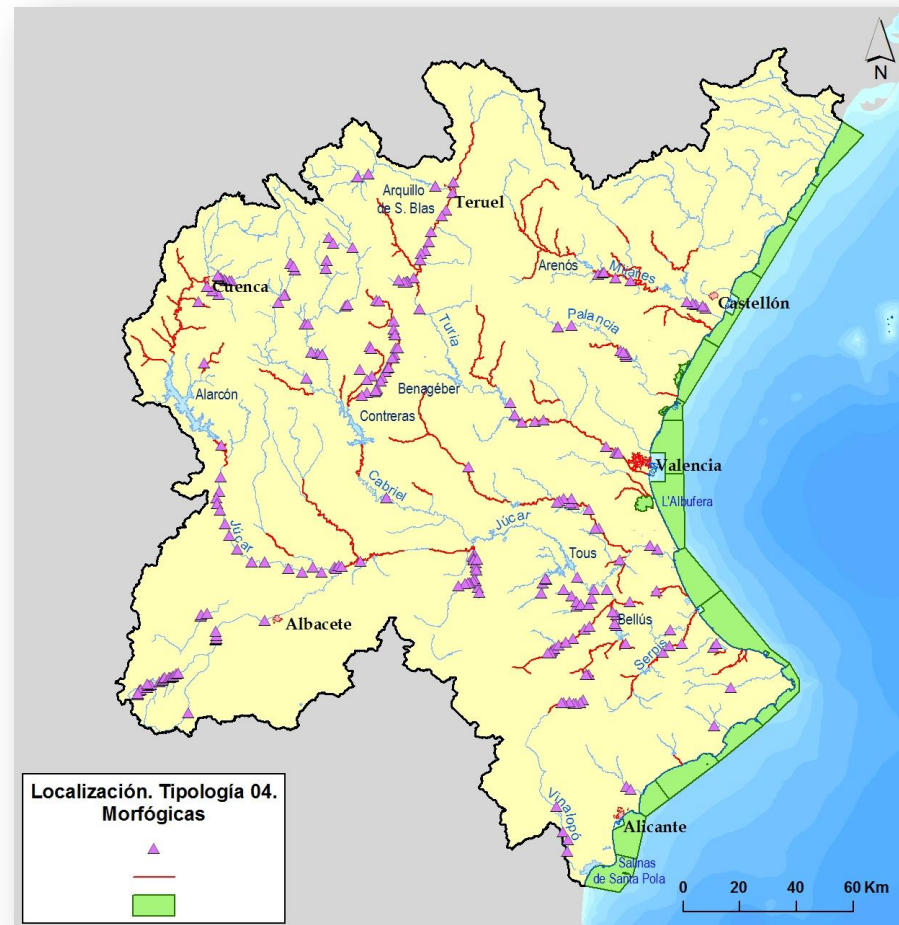


Date	Activities	Speakers
19-oct	9:30-9:45 Welcome of the President	Mª Ángeles Ureña (JRBA)
	9:45-10:30 Water management and planning in the Júcar River Basin District	Teodoro Estrela (JRBA)
	10:30-11:00 The Peer Review Mechanism for WFD implementation	Tatiana Ortega (JRBA)
	11:00-11:30 Break	
	11:30-12:00 The evaluation of the water bodies status at the Júcar River Basin Management Plan	Arancha Fidalgo (JRBA)
	12:00-12:30 Situation and difficulties to achieve the longitudinal and transversal connectivity in the rivers of the Júcar River Basin District	Sara Jiménez (JRBA)
	12:30-13:00 Open discussion	All
	13:00-13:30 Hydrological regime and environmental flows in the Júcar River Basin District	Mª Carmen Regidor (JRBA)
	13:30-14:00 Open discussion	All
	14:00-15:30 Lunch	
	15:30-16:00 Weirs demolition in USA	Pao Fernández (World Fish Migration Foundation)
	16:00-16:30 Experiences in Tagus River Basin District	Lidia Arenillas (TRBA)
21-oct	16:30-17:00 Open discussion	All
	17:00-17:30 Case study of Palancia River	Sara Jiménez (JRBA)
	9:30-18:30 Visit to Palancia river basin	
	9:30-10:00 Hydro-morphological measures and Cost Effectiveness Analysis in the Júcar River Basin Management Plan	Sara Jiménez (JRBA)
	10:00-11:00 Open discussion	All
	11:00-11:30 Break	
	11:30-12:00 Visit to the dependences of the Automatic Hydrological Information System in Júcar River Basin Authority	All
	12:00-12:30 Experiences in the Júcar River Basin District	Javier Ferrer and Luis Garijo (JRBA)
	12:30-13:00 Experiences in the Duero River Basin District	Urbano Sanz (DRBA)
	13:00-14:00 Open discussion	All
	14:00-15:30 Lunch	
	15:30-16:00 Modelation of riparian vegetation	Alicia García (Polytechnic University of Valencia)
22-oct	16:00-16:30 Open discussion	All
	16:30-17:00 Case study of the Upper Júcar river basin	Sara Jiménez (JRBA)
22-oct	8:30-20:00 Visit to the Upper Júcar river basin	All
23-oct	9:30-11:00 Wrap up and conclusions	All
	11:00-11:30 Break	
	11:30-13:30 Preliminary report of the EU experts	EU experts

“Palancia” river field visit



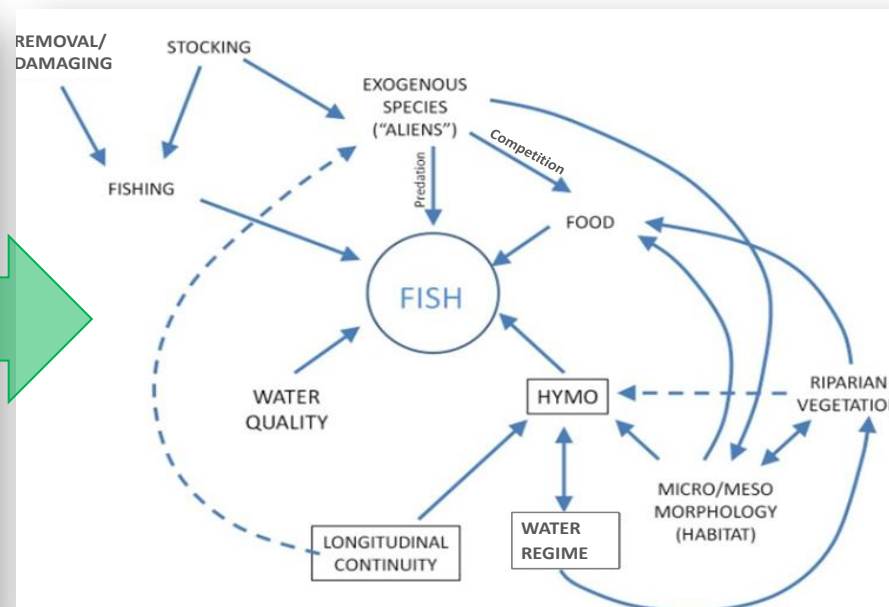
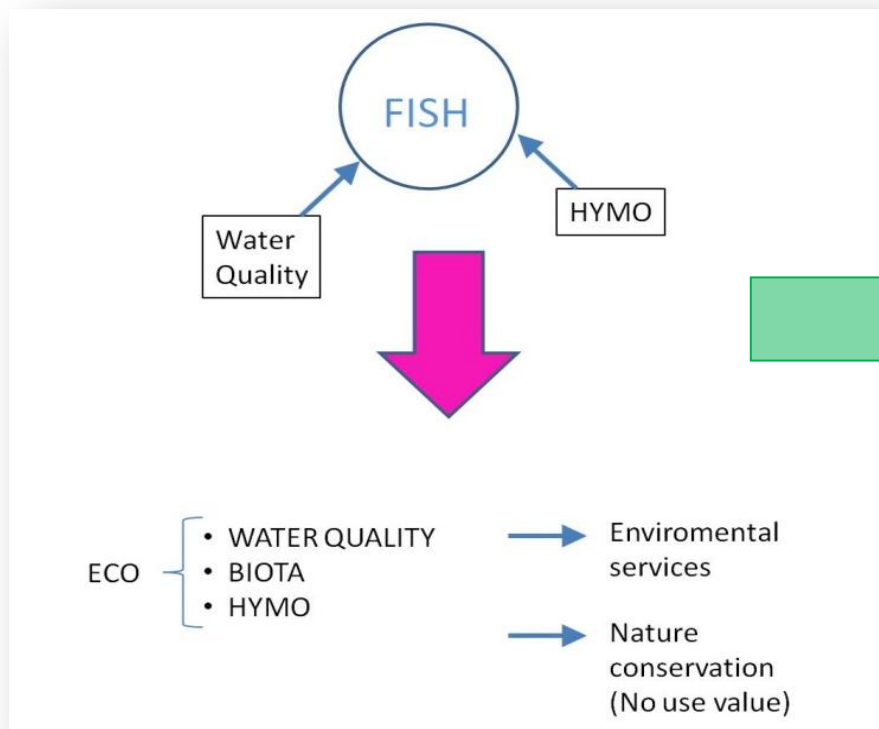
- Implementation of e-flows
- Improvement:
 - ✓ **Longitudinal** connectivity
 - ✓ **Lateral** connectivity



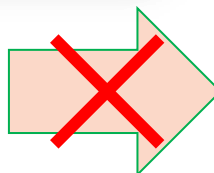
Typology	2016-2021	2021-2027	TOTAL
Hydro-Morphology	68,33	67,39	135,72

M € (10⁶ €)

Special considerations

















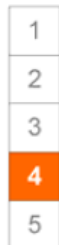
• Improvement of longitudinal connectivity



• Improvement of ichthiofauna

- **Prioritizing** according to a criterion like efficiency «**catchment area captured by free reach**» .
- Weirs/dams to be initially discarded (or postponed) are those: structurally in good shape; with high cultural value; currently used; performing as clear aliens' barrier;
- Most of weirs can be «solved» by simple naturally-shaped **fish passes** which can play an important role of e-flow sentinels, containing also compensative spawning sites and rearing habitats for juveniles

- Adopt evaluation indices that are able “to perceive” the improvement associated with the actions to be undertaken.
- The WFD worst-case aggregation criterion is to rough

Non integrated judgment (WFD)	Integrated judgment (averaged)	Integrated judgment (weighed)
Elements: Ecol. status	Elements: Ecol. status	Elements: Ecol. status
biological  chemical  hydromorph.   	biological (weight 1/3)  chemical (weight 1/3)  hydromorph. (weight 1/3)  (total weight 1,0)  	biological (weight 0,5)  chemical (weight 0,3)  hydromorph. (weight 0,2)  (total weight 1,0)  
Value: “the worst gains” = 5	$5/3 + 3/3 + 1/3 = \mathbf{3}$	$[(5 \cdot 0,5) + (3 \cdot 0,3) + (1 \cdot 0,2)] = \mathbf{3,6}$

- At a planning level, choose segments -or whole rivers- which can become elements of a wider ecological network where the aim would be recreating actual **fluvial corridors**
- Strengthen links between the Flood MPlan (Flood Directive) and the Water MPlan (WFD) , particularly if geomorphic issues are taken into consideration: **HYMO ecosystem quality index.**
- Choose restoration actions within a range of candidate actions based on the analysis of each case -study at a local level

- Try to demonstrate the **social desirability** of the choices undertaken, with the explicit evaluation of stakeholders' satisfaction (**cost-benefit analysis** vs .strategic environmental assessment)
- **Refine knowledge** and tools for what concerns fish fauna, where genetics seems to cover an important role, while it is little considered at planning level. (additional sampling)
- Reinforced participatory dimension y means of the “**Contrat de Rivière**” where the idea is pulling all stakeholders together around a table in order to share the awareness and conviction that they can achieve more benefits through an alliance.



FLUVIAL RESTORATION MEASURES IN THE JÚCAR RIVER BASIN MANAGEMENT PLAN

“PEER REVIEW” PROJECT FOR WFD IMPLEMENTATION



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Lourdes, October 2016