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Session D7: The Most Evaluated Fishway in Spain: A New Lesson Every Year

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Fish Passage 2015
June 22-24
Groningen/The Netherlands



The most evaluated fishway in Spain: A new lesson every year

F.J. Sanz-Ronda; F.J. Bravo-Córdoba; J.F. Fuentes-Pérez; J. Ruiz-Legazpi

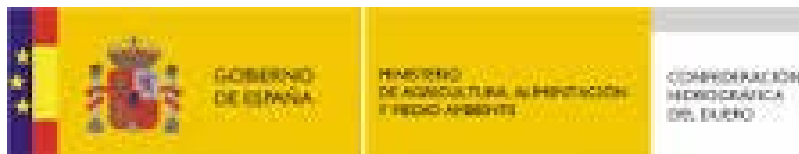
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GEA: Grupo de Ecohidráulica Aplicada –[Applied Ecohydraulics Group] Itagra.ct

² CEIBA Estudios Ambientales S.L. Monasterio del Escorial, Nº 6. 28049 Madrid



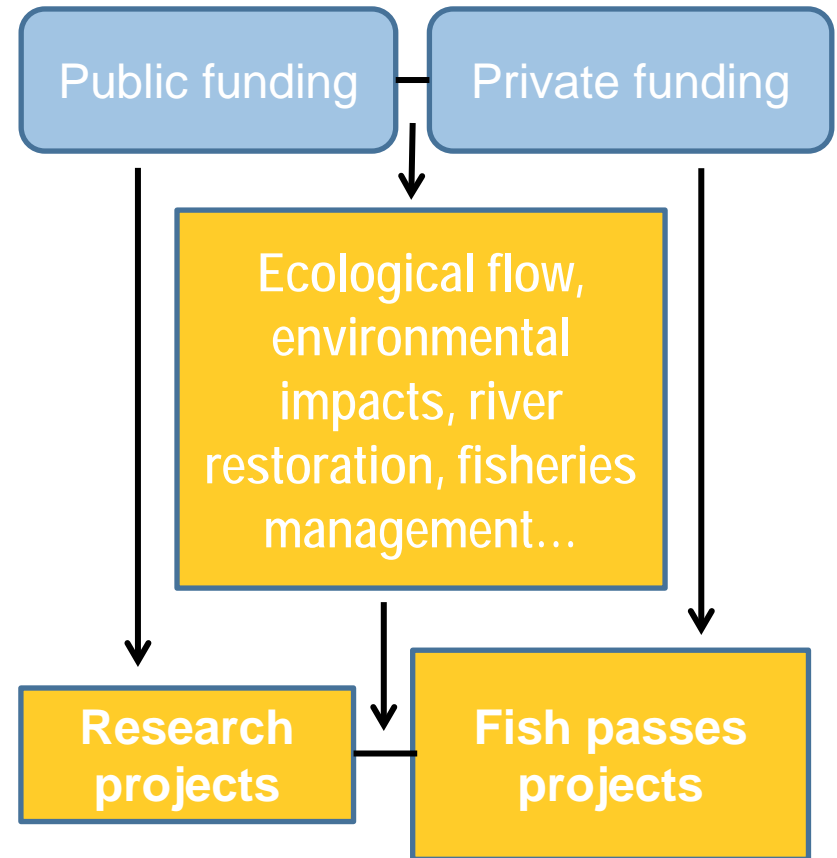
SSF S.L.



1. Introduction



Ecohydraulics research
group
University of Valladolid
Hydroaholics + ictioaholics

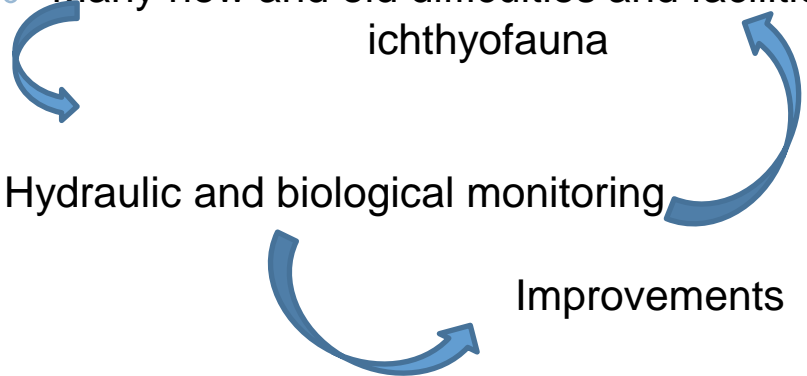


1. Introduction

- Many new and old difficulties and facilities for migration ichthyofauna

Hydraulic and biological monitoring

Improvements



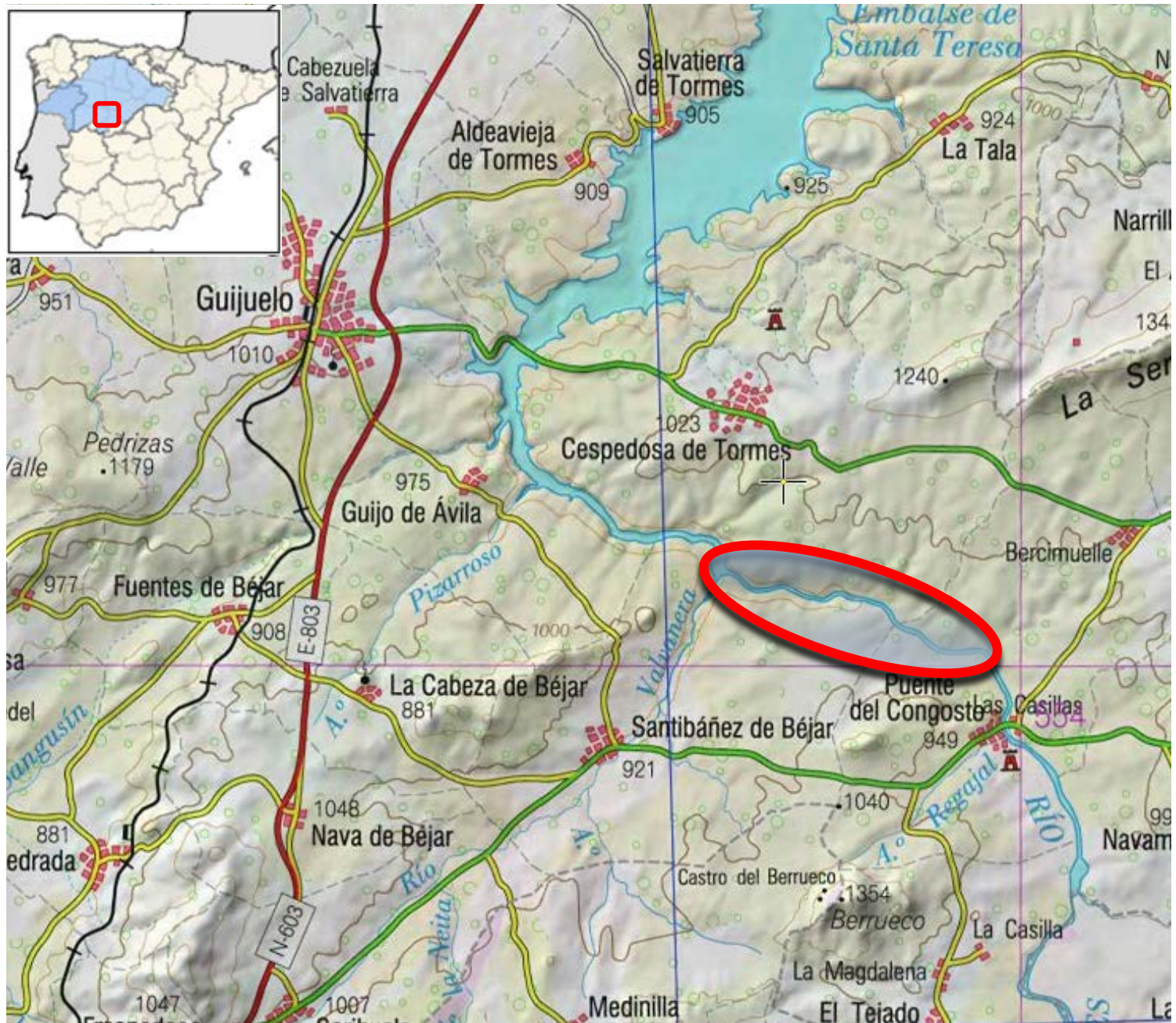
An example: Tormes River in Santibañez de Bejar (Salamanca)

Trout (*Salmo trutta*), Barbel (*Luciobarbus bocagei*) and nase (*Pseudochondrostoma duriense*)



Monitoring { Biological: movement pattern, approach, entry, passage } 4 years

2. Study area





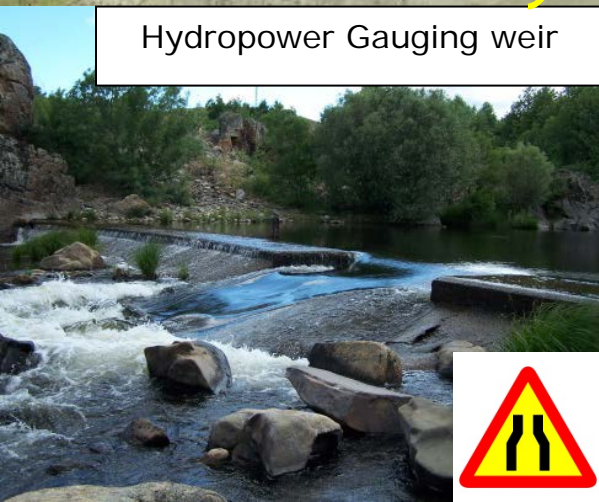
Weir in the reservoir tail



Hydropower weir



Hydropower Gauging weir



Natural waterfalls



Flat V Gauging station



3. Aims

- a. Assess different obstacles
- b. Detect difficulties and improve them
- c. Enhance monitoring methodologies in field sites

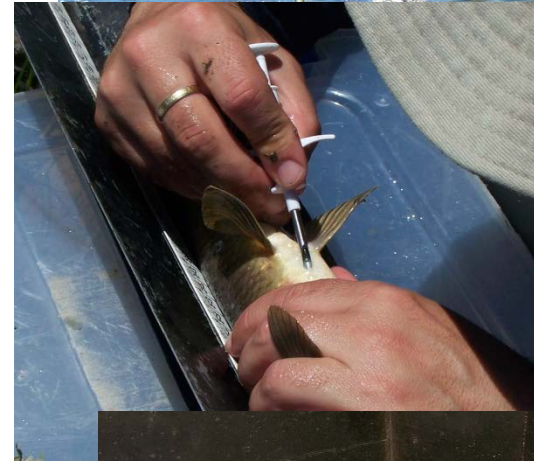
4. Methods: biological monitoring

- Trapping
- Electrofishing



4. Methods: biological monitoring

- Nets
- Passive Internal Transponder (PIT Tags)
- External tags
- Video - monitoring



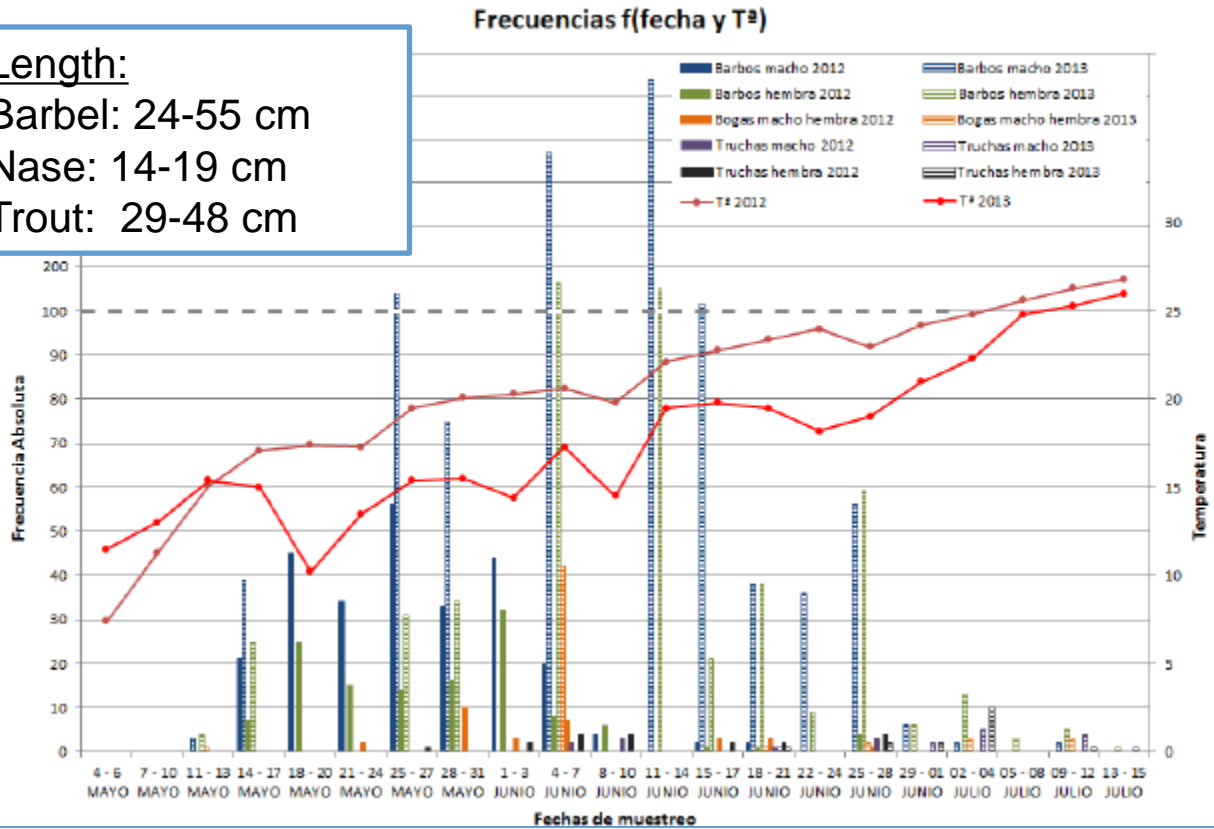
4. Methods: hydraulic monitoring

- Flow discharge: chemical gauging
- Flow velocity
- Depths
- Power dissipation



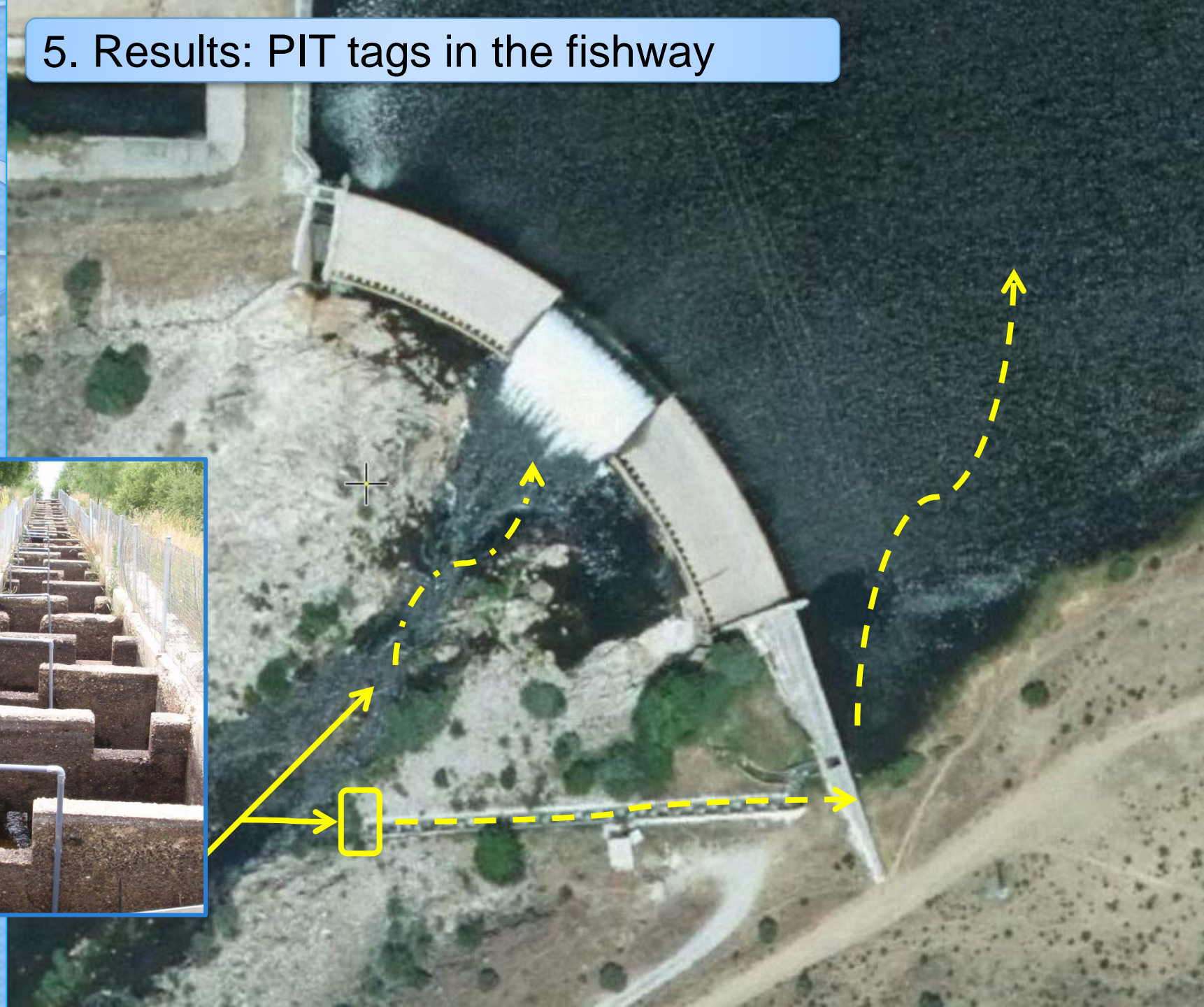
5. Results: trapping in the top of the fishway

Length:
 Barbel: 24-55 cm
 Nase: 14-19 cm
 Trout: 29-48 cm

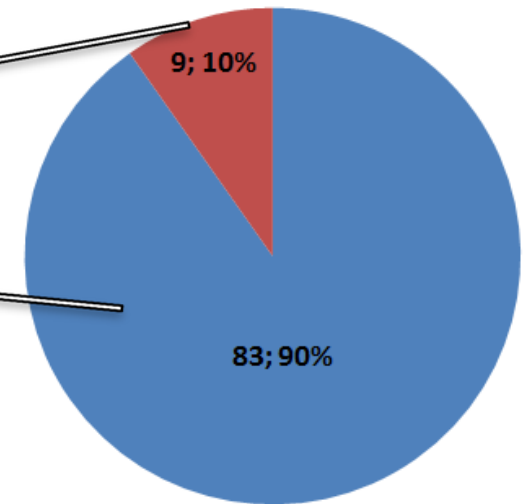
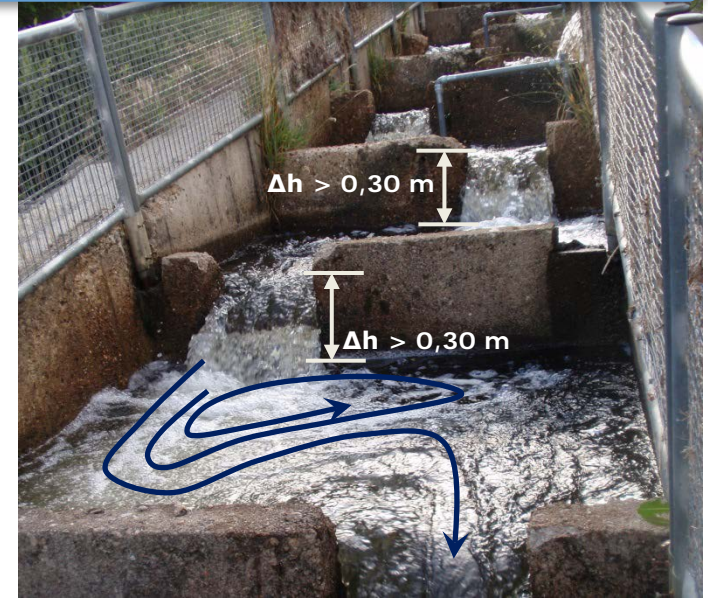


Trapping	2012	2013	2014	2015
Barbel	390	2,191	2,819	> 1,500
Nase	29	53	2,026	> 6,000
Trout	24	29	99	> 100

5. Results: PIT tags in the fishway



5. Results: video-monitoring



■ orificio ■ vertedero

5. Results: video-monitoring



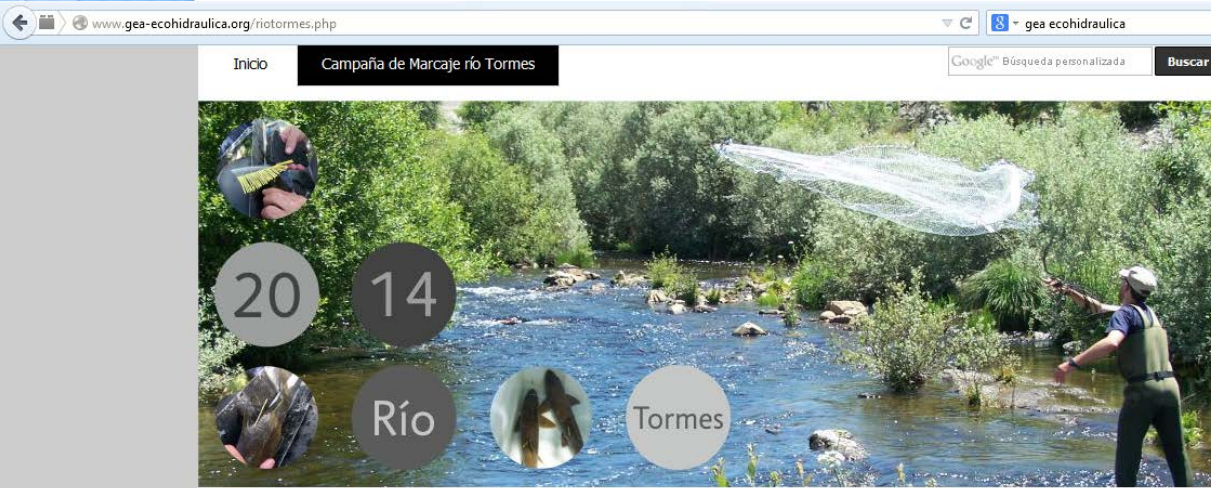
6. Improvements



- New fishway design
- New attraction weir in the fishway
- By-pass in the gauging weir
- By-pass in the reservoir tail



6. New assessment



Campaña de Marcaje río Tormes 2014

Actualmente nos encontramos realizando una campaña de marcajes periódicos en el río Tormes, a la altura de los municipios de Santibañez de Béjar y Céspedes de Tormes. Esta acción forma parte de un estudio que persigue conocer mejor los hábitos de nuestros peces ibéricos. Por ello si has encontrado un pez marcado te agradeceríamos que nos facilitaras los siguientes datos. No dudes en ponerte en contacto con nosotros para más información.



- New fishway: Trapping, PIT tags and video-monitoring
- By-pass with PIT tags
- Movement patterns with external tags
- Influence of different tag systems



6. Next year... Will we be able to answer these questions?



6. Next year... Will we be able to answer these questions?



- Which kind of fishway works better?
- Are there some differences in the ascent?
- Relation between time-dependent covariates and spawning (survival analyses)
- Which is the best combination for field tagging?
- Can video-monitoring be a good and cheap assess tool?
- ...





Bedankt voor uw aandacht!!!



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