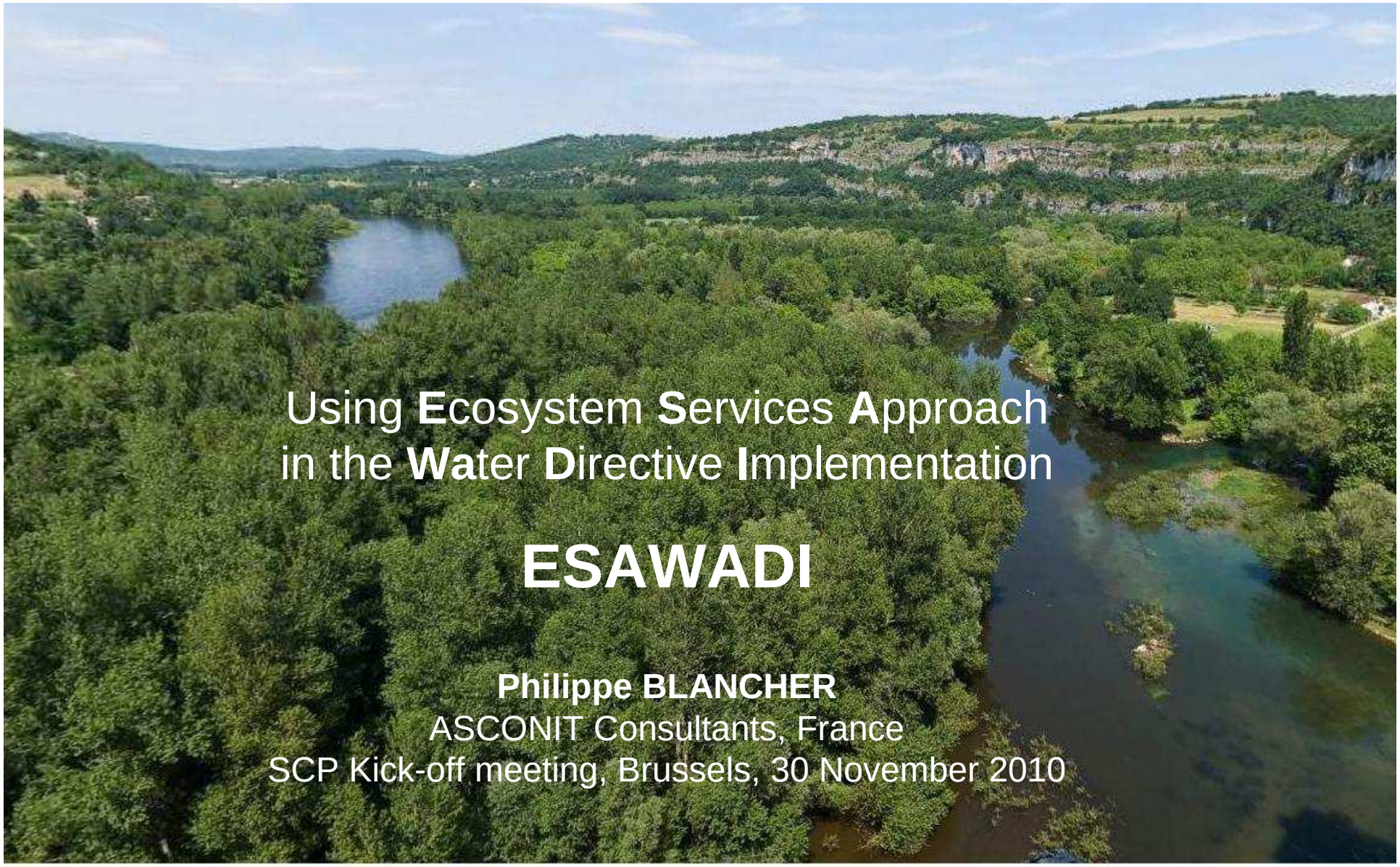


Using **E**cosystem **S**ervices **A**pproach in the **Wa**ter **D**irective **I**mplementation

ESAWADI

Philippe BLANCHER
ASCONIT Consultants, France
SCP Kick-off meeting, Brussels, 30 November 2010

Regional and national research programmes network on
Integrated Water Resource Management

Outline

1. Overview and main themes (reminder)
2. The work done during the 1st year
3. More on Dordogne Case-study
4. More on Mondego Case-study
5. More on Ems Case-study

ESAWADI Objectives

To analyze and test the potential utility of ecosystem services approach for the implementation of WFD :

- To contribute to economic analysis required for by the WFD
- To illustrate some concepts and relatively abstract objectives of the WFD among the stakeholders and public, and help the decision-making process
- To generate recommendations for the RBMP mid-term evaluation in 2012, in view of the WFD second round

ESAWADI Team

Asconit Consultants, France (ESAWADI Coordinator)
Consultants
Natural resources, water monitoring, regional planning and sustainable development

CREDOC, France
Research institute
Public policy, economics and sociology

Seeconsult, Germany
Consultants
Environment, Economics, Society and Politics

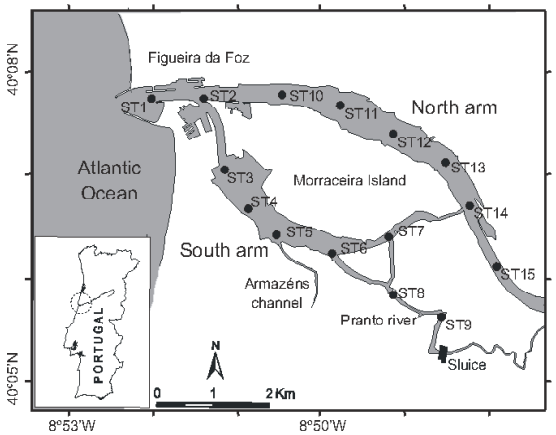
Intersus, Germany
Freelance Consultant, Eduard Interwies

IMAR - Instituto do Mar, Portugal
Fundamental and Applied research institute
Research on marine and coastal systems

ESAWADI case-studies objectives :

Germany

River continuity
of the Ems River
Planned hydropower plants
Eel population



Portugal

Mondego Estuary
Ecosystems
Economic efficiency of
competing uses

France

Middle Stream of
Dordogne River and
hydromorphology
issues

Framework of analysis - Methodological orientations

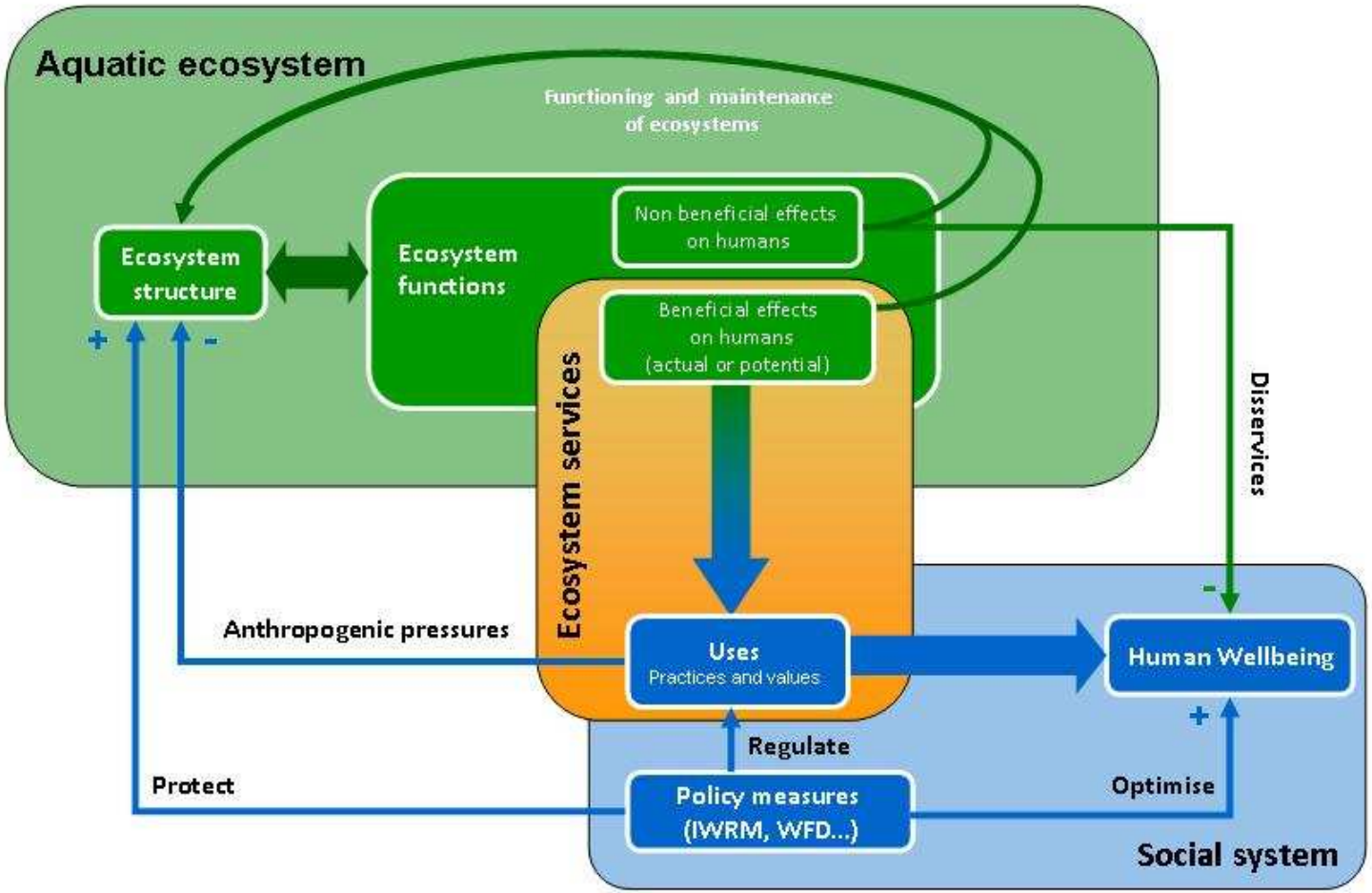
The ecosystem services approach can be applied to assess the benefits of water management measures which could improve the water bodies ecological state and thereby convince stakeholders of the relevance of these measures.

To achieve these goals, the case study aims to:

- provide a good description of the **relations between ecological functions**, based on a good ecological state, and **services** (effective or potential) important to stakeholders
- provide **physical** (or at times monetary) **data/indicators** which give **a fair indication of the importance of the service**
  (economic valuation is relevant)

  Indicators approved both by scientists and stakeholders, since we can not expect a strong scientific legitimacy.

Provide a good description of relations between ecological functions and services important to stakeholders



Key lessons from the first phase

Since the project is ongoing, these key lessons below are provisional:

1. **Policy:** Very high interest and expectations from Water Authorities who need to convince stakeholders of the measures required to improve the water bodies status, hydromorphological state
2. **Scientific:** Development of the method itself very interesting to go deeper in the scientific issues and raise questions related to the link between good ecological status and ecosystem functioning
3. **Operational:** too early to draw lessons



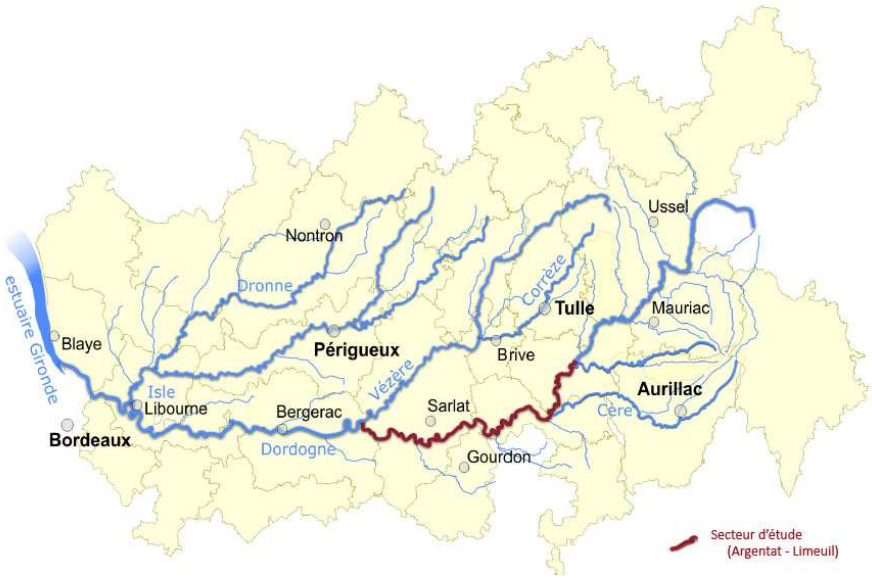


Dordogne River and Hydromorphological Good Status

ESAWADI project case study
FP6 IWRM-Net2

The Dordogne Valley ?

Overall basin : 24 500 km² - Dordogne River : 475 km
In red, the study-area = the most dynamic part of Dordogne Valley

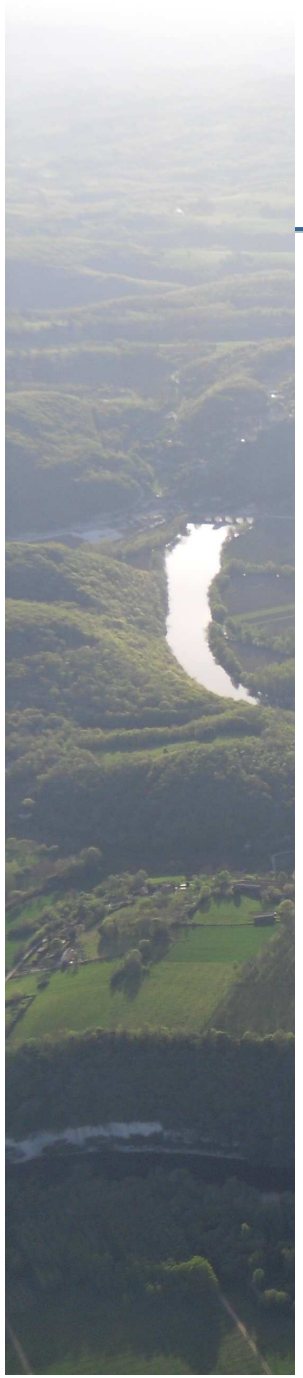


Hydro-electricity

Crop Irrigation

Tourism

Photo credits : EPIDOR



Why is hydromorphology important?

Major transformations over the 20th century due to:

- Construction of hydro-electric dams in the up-stream part ➔ sudden variations of water levels and temperature in relation to dam operations, no more morphogenic floods, no more formation of oxbow lakes…
- Mineral extraction in the flood plain till 1981 ➔ heavy physical deformation, bank erosion, channel incision…
- Flood protection works ➔ constraints on river capacity to shift its course, physical deformation

Both river dynamics and a river's capacity to shift its course are pointed out in WFD implementation as good status requirements

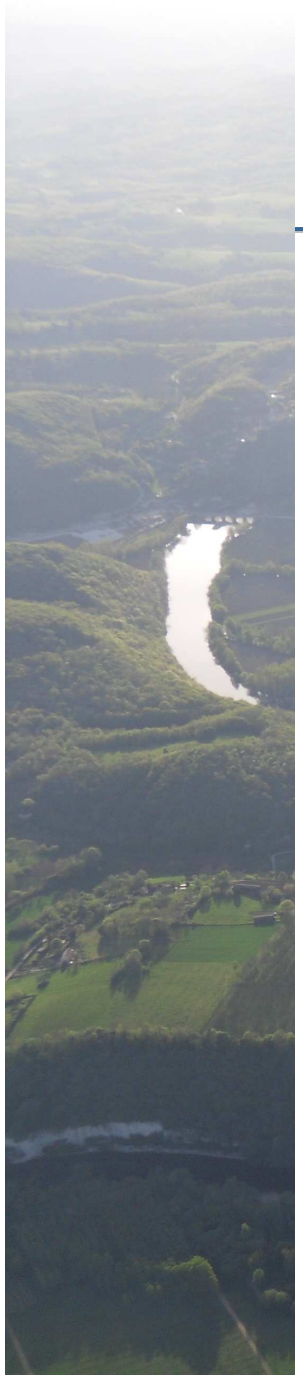
Some issues related to hydromorphological situation?

Floods and floods prevention

Bank erosion

Water authorities faced with the complexity of morphological processes and difficulties to convey hydromorphological issues to stakeholders

Oxbow lakes restoration



Main stakeholders

Involved in the case-study framing and implementation:
EPIDOR (Regional Public Watershed Board), Adour-Garonne Water Agency, ONEMA Regional office

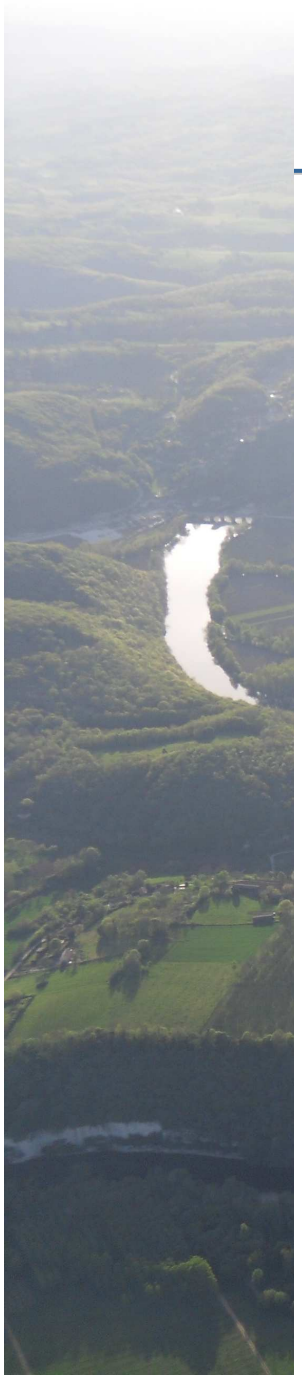
EPIDOR
la rivière solidaire

AGENCE DE L'EAU
ADOUR-GARONNE
ÉTABLISSEMENT PUBLIC DE L'ÉTAT

ONEMA
Office national de l'eau et des milieux aquatiques
Direction de l'action scientifique et technique

Institutional stakeholders involved through a written questionnaire and a workshop (planned for Feb. 2012):
Local authorities, farmer representatives, leisure activities representatives…

Riparian population involved through a written questionnaire (done) and a public meeting (planned for Feb. 2012 and organized by EPIDOR)



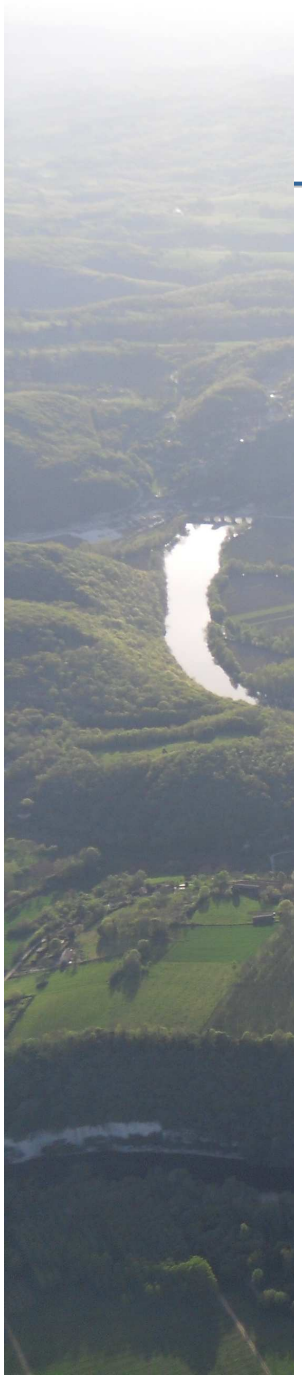
ES approach implemented

Completed steps :

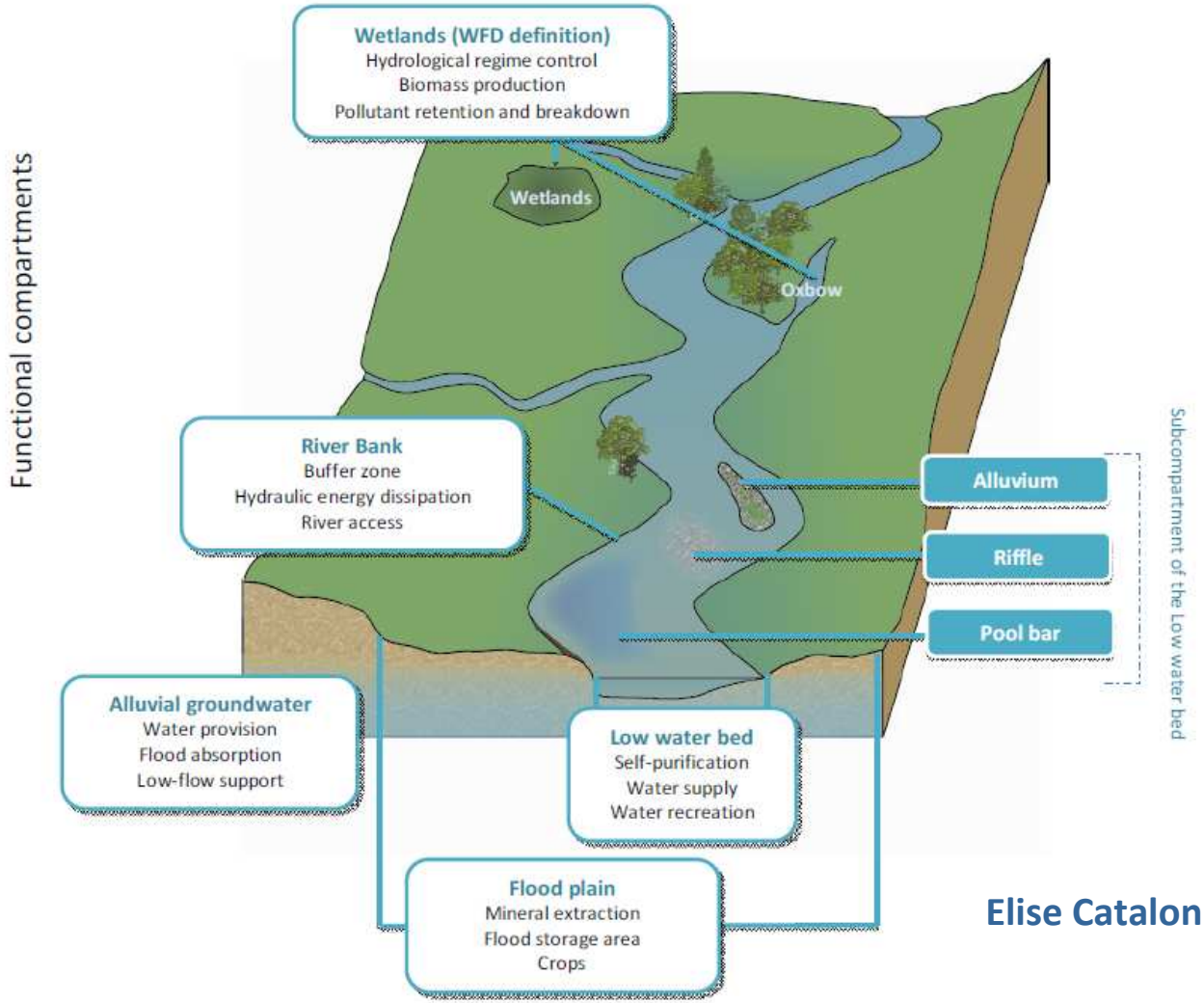
1. In-depth **analysis of the local context**, water bodies status, local uses and practices, issues at stake…
2. Broad **identification of ecosystem services** present in this area
3. Development of an **analysis framework** based on relations between river functional compartments, ecosystems and services
4. *Questionnaire* on the understanding and relations riparians have with the hydromorphological issues

Ongoing steps:

5. **Analysis of the 120 questionnaires completed**
6. Identification of the **ecosystem services** which will be **prioritized and quantified**, of the **relevant scale/area** and **choice of the indicators** which will be tested (different indicators for the same service)

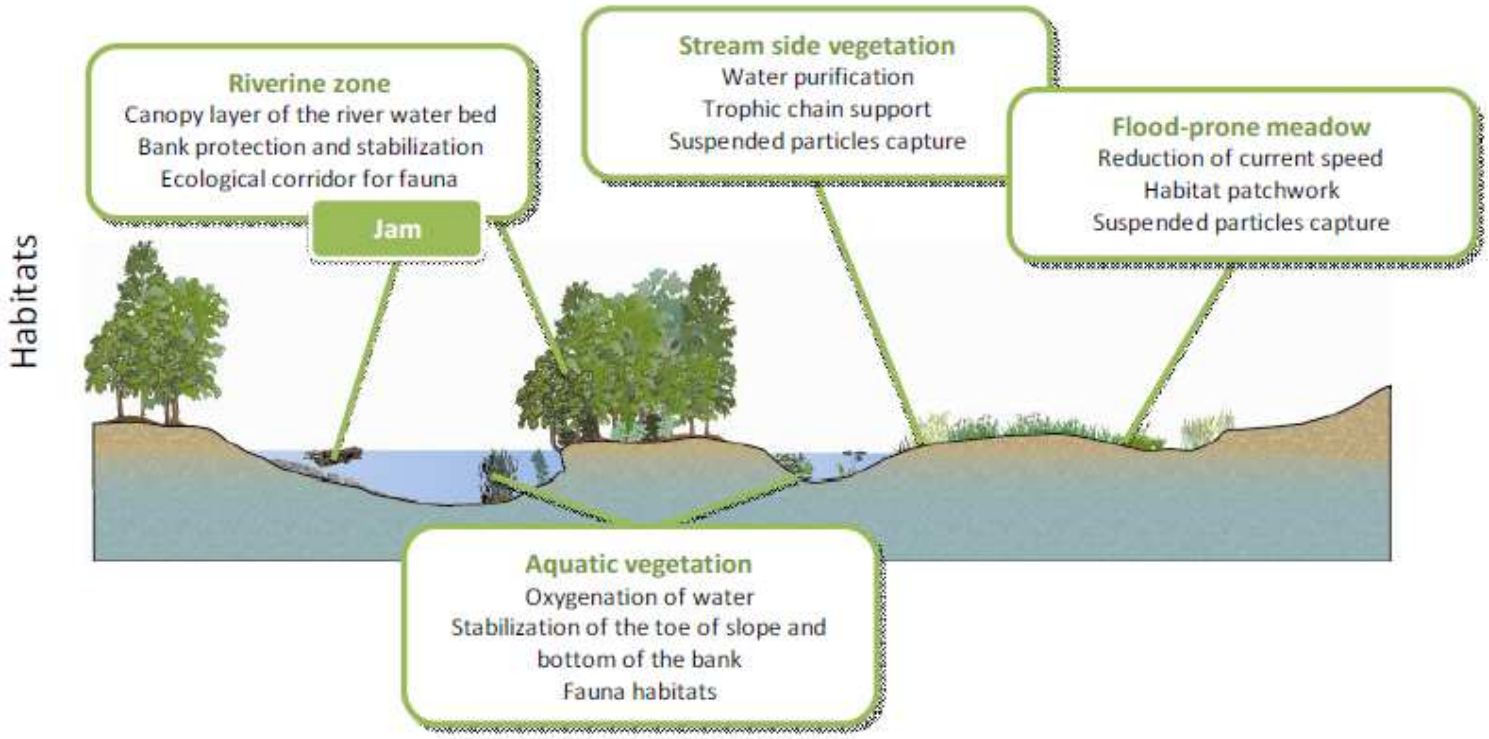


Identification and characterization of Dordogne river compartments functions



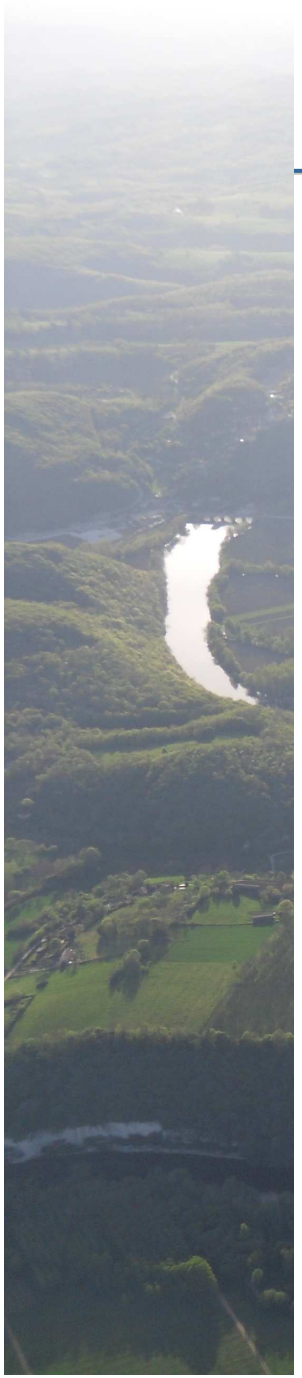
Elise Catalon

Identification and characterization of Dordogne river ecosystems functions



River associated ecosystems and some examples

CATALON Elise



Identification of ecosystem services relevant to this theme

Provisioning services:

Professional fishing

Water supply for domestic use

Water supply for agricultural uses

Cattle watering place

Regulation services:

Auto-purification of water

Biodiversity and ecosystems preservation

Prevention of bank erosion

Prevention of floods

Drought impact mitigation

Regulation of local climate

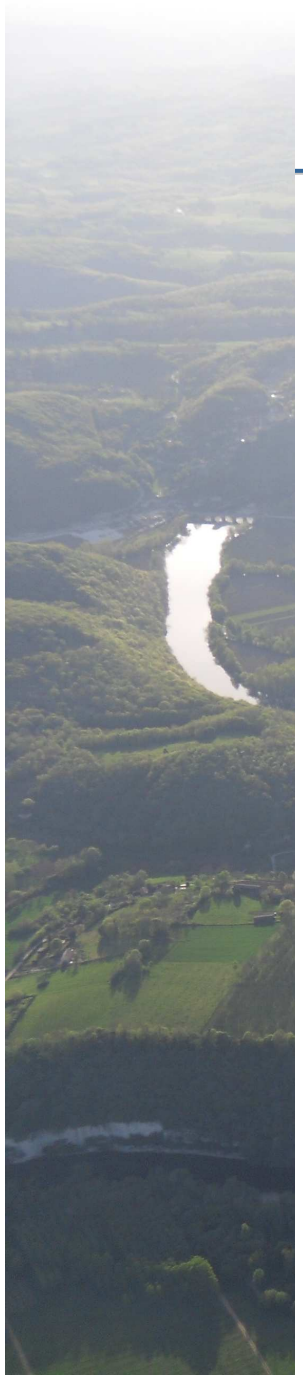
Societal services:

Landscape (aesthetic value, support for artistic inspiration)

Biodiversity, social and heritage value

Leisure fishing and hunting

Tourism and fresh-water activities (bathing, boats…)



Some indicators to be tested

Regulation services:

Auto-purification of water:
data's on pollution reduction due to a riffle before a place important for freshwater activities, savings on treatment

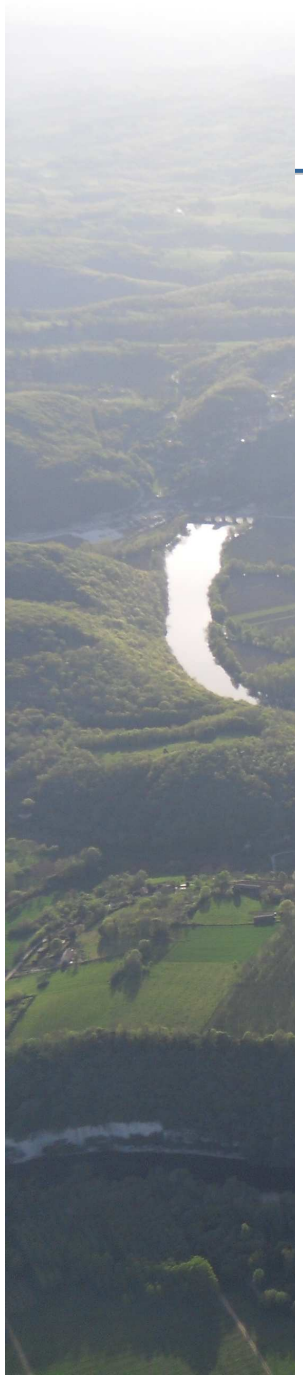
Provisioning services:

Professional fishing: annual turnover

Societal services:

Leisure fishing and hunting:
number of fish permits, data's on number of users

Tourism and fresh-water activities (bathing, boats…): data's on number of users, number of clubs, number of spots, turnover



ES approach to be implemented

Planned steps :

7. Full **description**, **localization** (GIS treatment) and **quantification of the services**, assessment of some measures (Oct. 2011 to Jan. 2012)
   Try to assess the increase in ecosystem services related to a loss of hydroelectricity production implied by measures good for the geomorphological status
8. **Discussion of the results with stakeholders** (Feb. 2012)
9. **Modifications** to take into account stakeholder feed-back (March-April 2012).
10. **Synthesis of the full process** (May 2012).

Portuguese Mondego case-study

Completed steps :

1. Characterization of the ecological quality status of the system
2. Inventory and qualification of estuarine ES
3. Analysis of the main Drivers-Pressures-Impacts (DPSIR framework) and possible Responses driving the system (mainly qualitative)

Ongoing steps:

4. Analysis of the questionnaires inferring water quality improvements at local/regional/basin/national geographical scales (≈1100)
5. Attempt to find linkages between biodiversity assets, functioning of ecosystems, ES, and human well-being

Planned steps :

6. How to integrate previous information into management actions (MCA)? (Jan. 2012)
7. Stakeholders results presentation and discussion
8. Trade-off and synergies relationships among ES

German Ems case-study

Completed steps :

1. Follow-up of a study which will: provide a detailed analysis on the current state of river continuity, set priorities for measures to improve river continuity, analyse the impact of planned hydropower plants, assess current situation of eel populations in the Ems River Basin.

Ongoing steps:

2. Identify ecosystem services in the Ems River Basin and to link them to functions influenced by river continuity.
3. Further operationalization of the ESA on locations prioritized for the implementation of measures

Planned steps :

4. Contribute to the decision-making process in relation to measures and further interferences with river continuity in the Ems River Basin, esp. connected to the justification of exemptions according to article 4 of the WFD and the “disproportionality of costs” criteria.

Thank you!

For more information, visit:

www.esawadi.eu