



# Ecological engineering: from concepts to applications for water management

**Pr Luc Abbadie**

**Pierre & Marie Curie University, Paris**

The Blueprint for European Waters: a Researchers' Roundtable  
Brussels, 20th September 2011

# ONEMA (Office National de l'Eau et des Milieux Aquatiques), The French Agency for Water and Aquatic Environments

## Four goals:

To develop the knowledge about water and aquatic environments

To collect and disseminate information on water and aquatic systems

To control the uses of water and aquatic systems (including fishing)

To help public authorities to design and implement policies

ONEMA has a scientific board composed of specialists of all natural and social sciences, and stakeholders, with assistants.



# A major political challenge: The European Water Framework Directive

Protect aquatic systems

Promote sustainable use of water

Reduce and prevent pollution

Mitigate the effects of floods and droughts in the context of climate change

Improve ecological quality in Community surface water



# A major scientific challenge: what is ecological quality ?

An adaptive community of organisms

- High biodiversity

- High complexity

A resilient ecosystem

- High heterogeneity

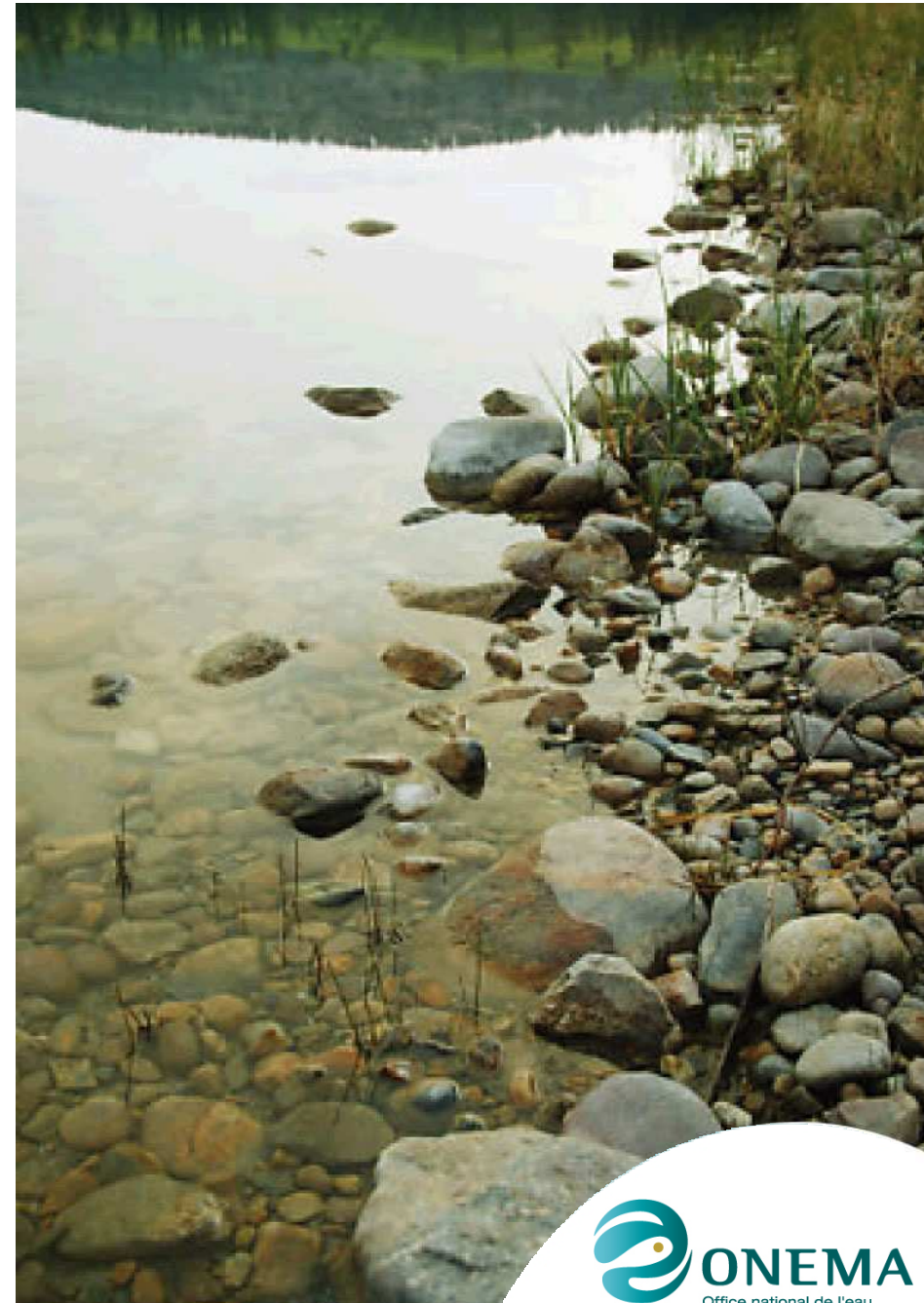
- Connectivity

An ecosystem providing constant ecosystem services

- Water quality and quantity

- Mitigation of droughts and floods

- Habitats for species





# A major technological challenge: The Ecological Engineering of Water Bodies

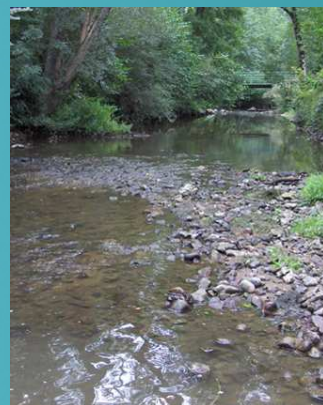
An ecosystem based approach

A multiscale approach (time and space)

The interdependency of ecosystem services

Permanent innovation: the use of ecological theory and results of research

Economic development: good practices in ecological engineering



**Thank you for your attention**

