Italian Centre for River Restoration

River Restoration basic concepts

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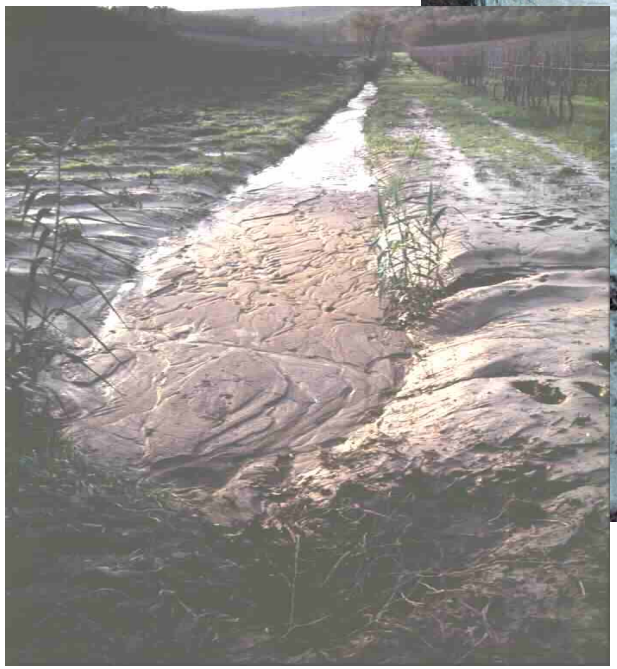
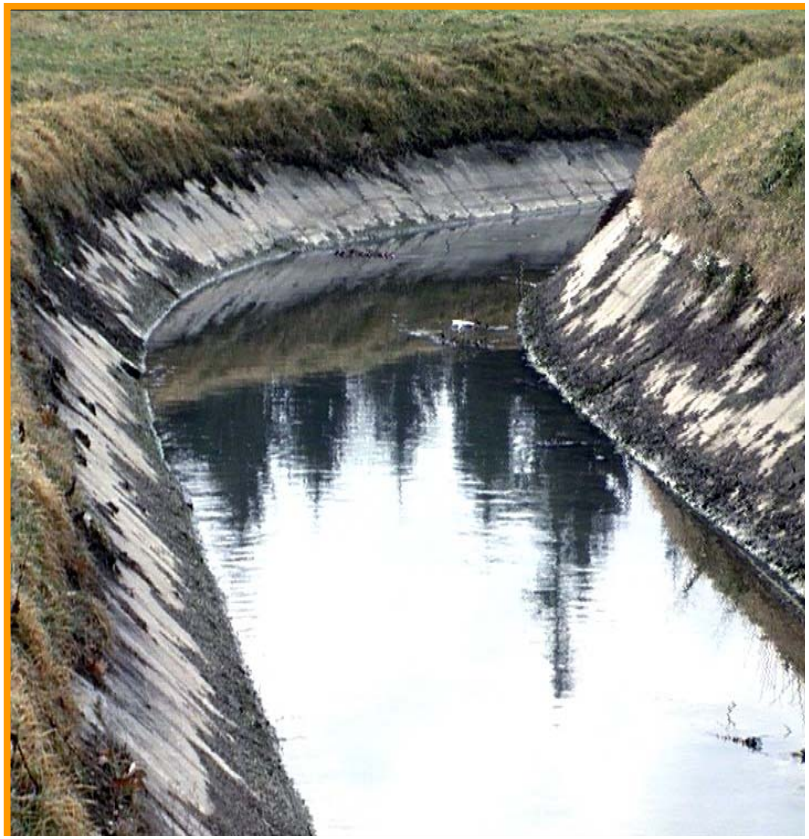
Hydro-geolog. risk

Pollution



Banalization of landscape

Loss of biodiversity, and naturality



Competition on WR use: MIFR

Wild urbanization

Loss of geomorpho equilibrium

Still several delightful rivers…

R.
RESTORATION:
a complex universe

- **preservation**
- **conservation**
- **renaturation**
- **rehabilitation**
- **remediation**
- **reclamation**
- **enhancement**
- **creation**

“Restoration”

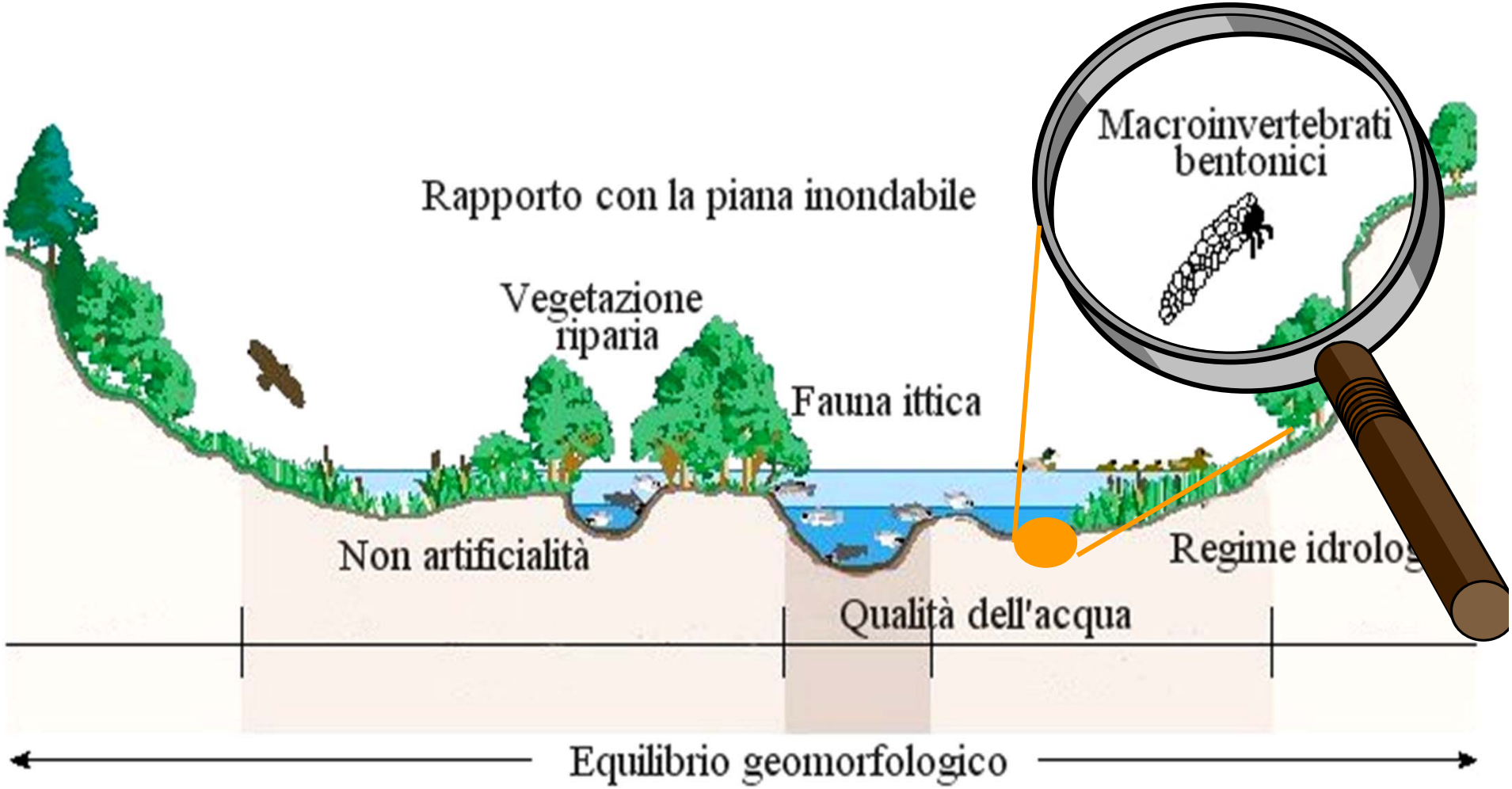
“Riqualificazione”

VISION

- Reverse degradation trend: preserve valuable rivers; do not worsen any more, rather improve *towards* a natural state
- Think of water courses in an integrated fashion

now *…tomorrow….* *natural*

OBJECTIVE "HEALTH"



ASSESSING the ECOLOGICAL STATUS of a RIVER

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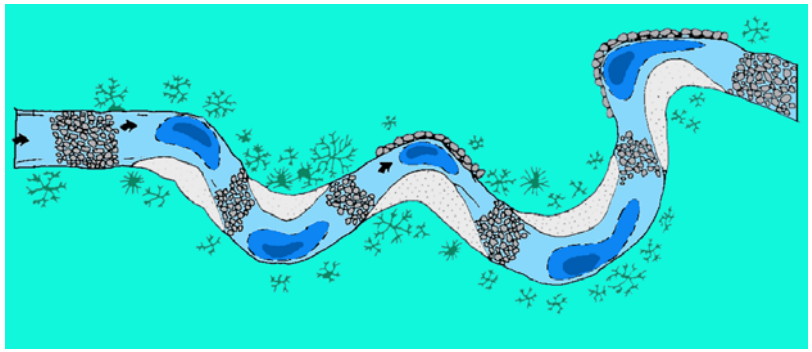
WATER QUALITY

BIOTIC QUALITY

HYDRO-MORPHOLOGICAL Q.

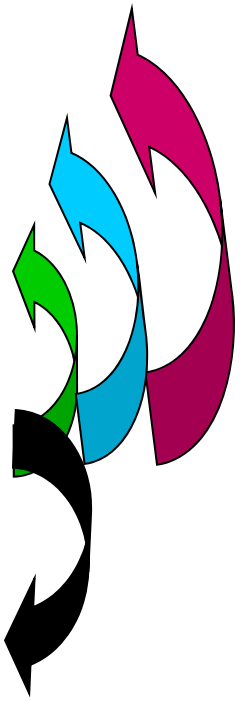


RESTORATION:

objective and means

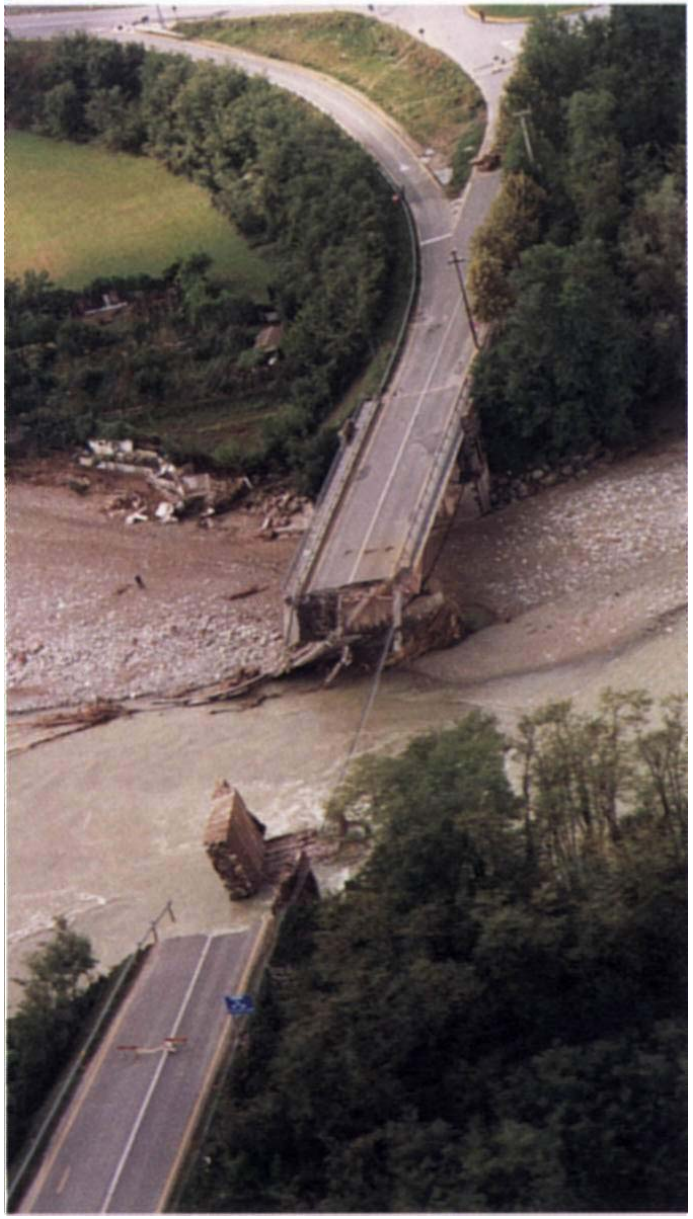
- more safety
- **allow anthropic activities**
- **satisfy recreation and fruition**

RR



- improve rivers (existence value)

Hydraulic RISK



HYDRAULIC RISK

versus

river HEALTH

"*….yes, but ecology comes AFTER safety!*

Hence physical interventions are effective, desirable and …widely implemented"

The approach adopted:

- put in SAFE conditions!

RISK: classic hydraulic approach and its effects

RISK: classic hydraulic approach and its effects

"cleaning" the river bed

RISK: classic hydraulic approach and its effects

RISK: classic hydraulic approach and its effects

Increase efficiency, confine flow:

$\Rightarrow$ levees, canalization

+ protects against events with:

$T \leq T^*$ (200)

- BUT..... less space to river: accelerated flow, increased peak, lower energy dissipation