

A POLLUTED URBAN RIVER AS A RESOURCE TO RAISE CITIZENS AWARENESS THE CASE OF THE BESÒS RIVER



Photo: Generalitat de Catalunya

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Mediterranean rivers

WET



Núria Cid

DRY



Núria Cid

Human impacts

Proserpina reservoir (Spain)



Segovia aqueduct (Spain)

Human impacts



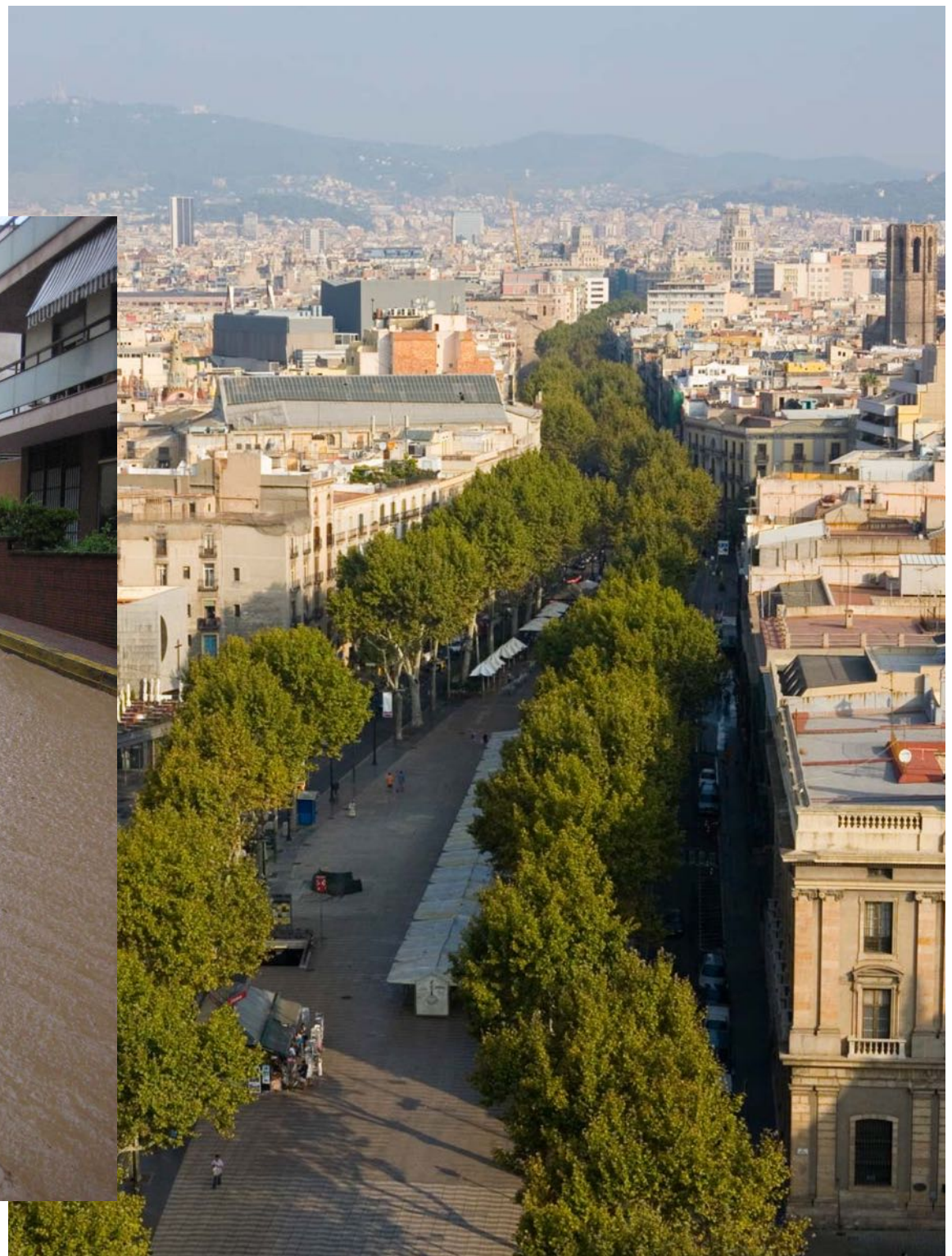
Human impacts



Urban rivers



Photo: Evelyn Garcia

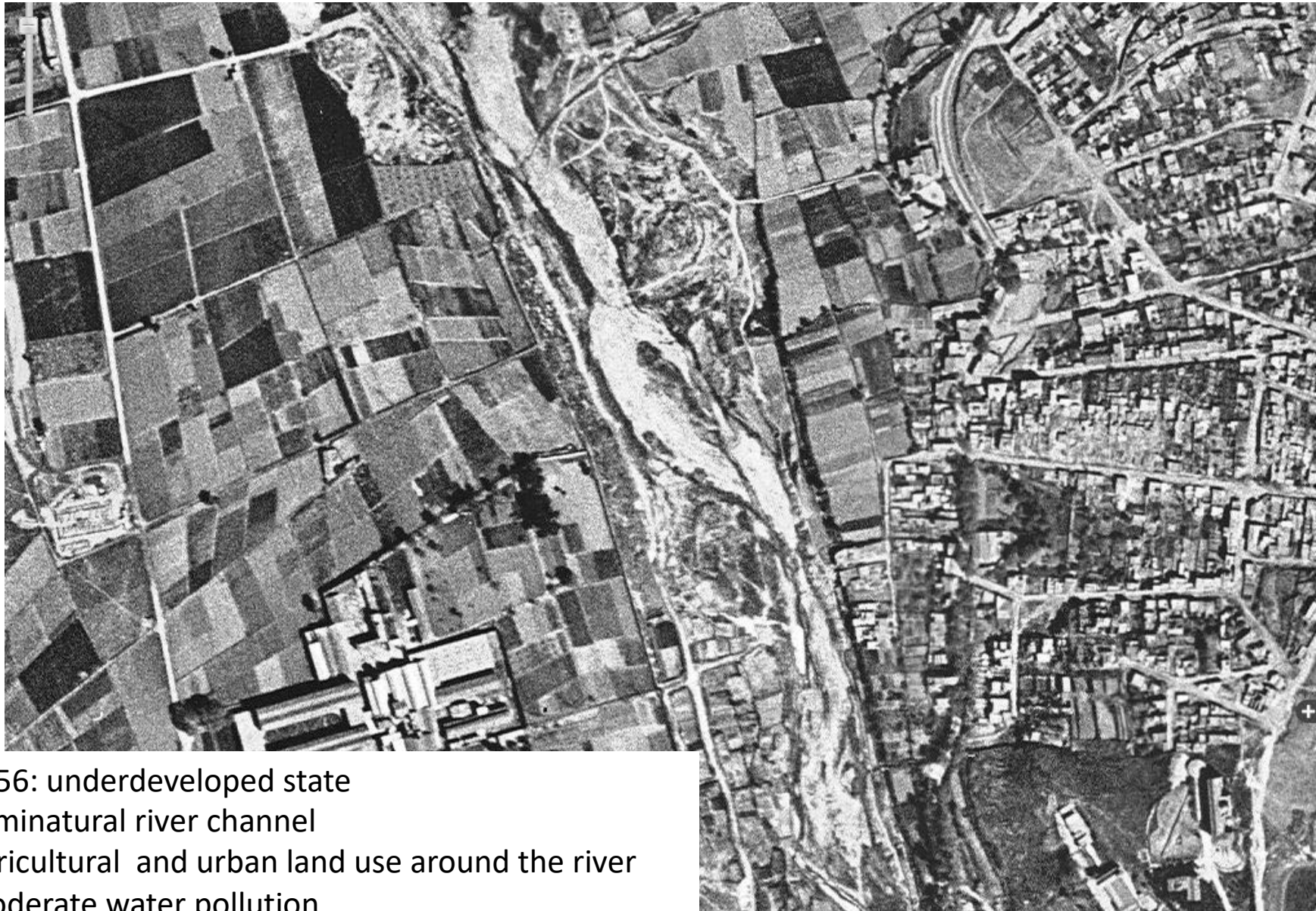


The Besòs River



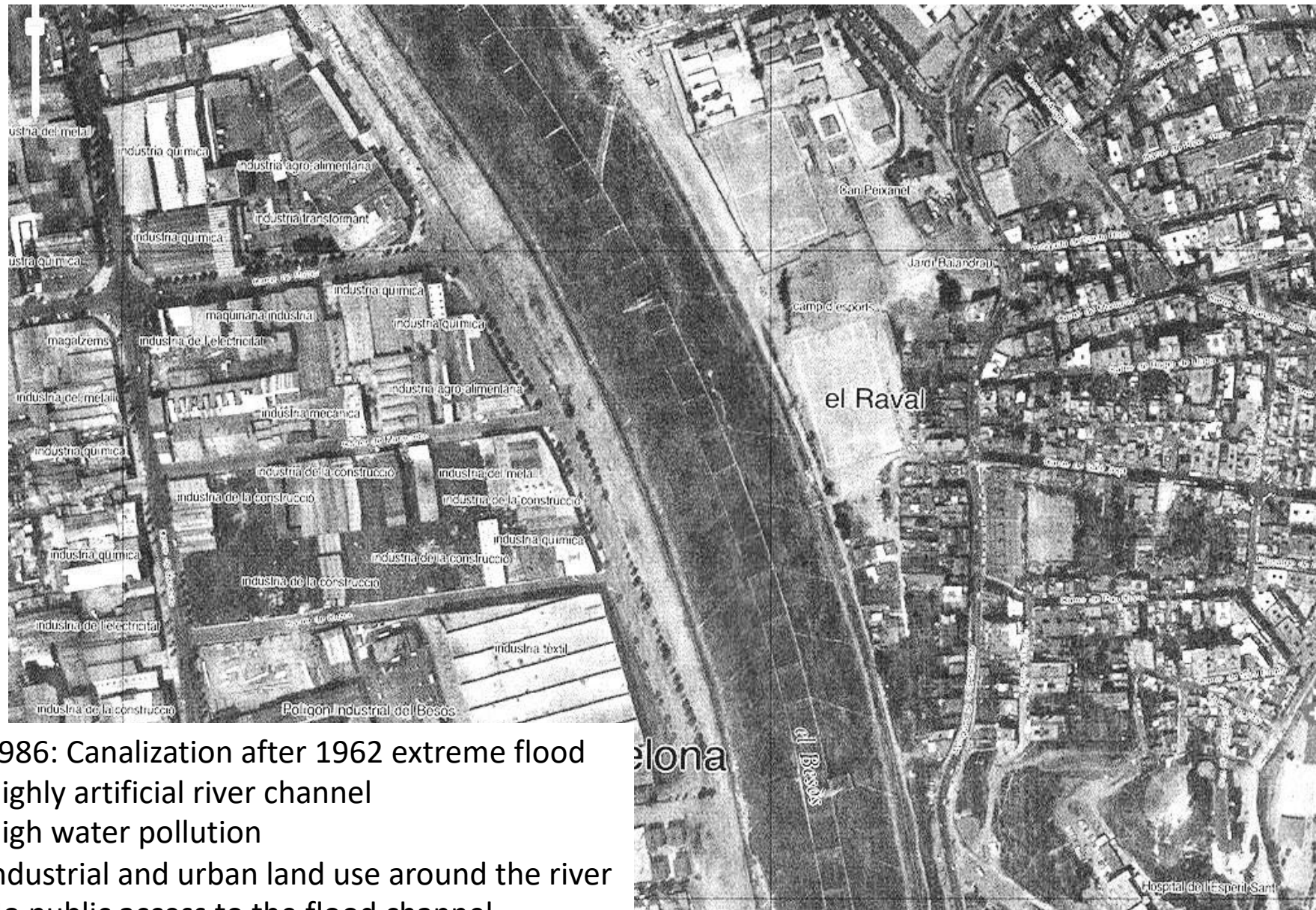
- Catchment surface = 1038 km²
- Confluence Congost-Mogent rivers
- Length of 18km
- >2 million people.
- Mean discharge in the lowlands = 5 m³/s
- No large dams, but small weirs
- Highly industrialised area
- Lowlands = urban river

The lowlands of the Besòs River



1956: underdeveloped state
Seminatural river channel
Agricultural and urban land use around the river
Moderate water pollution
Orchards and humble housings in the flood channel

The lowlands of the Besòs River



1986: Canalization after 1962 extreme flood
Highly artificial river channel
High water pollution
Industrial and urban land use around the river
No public access to the flood channel

The lowlands of the Besòs River



Photo from 1979

The lowlands of the Besòs River

Photo: ElPeriódico

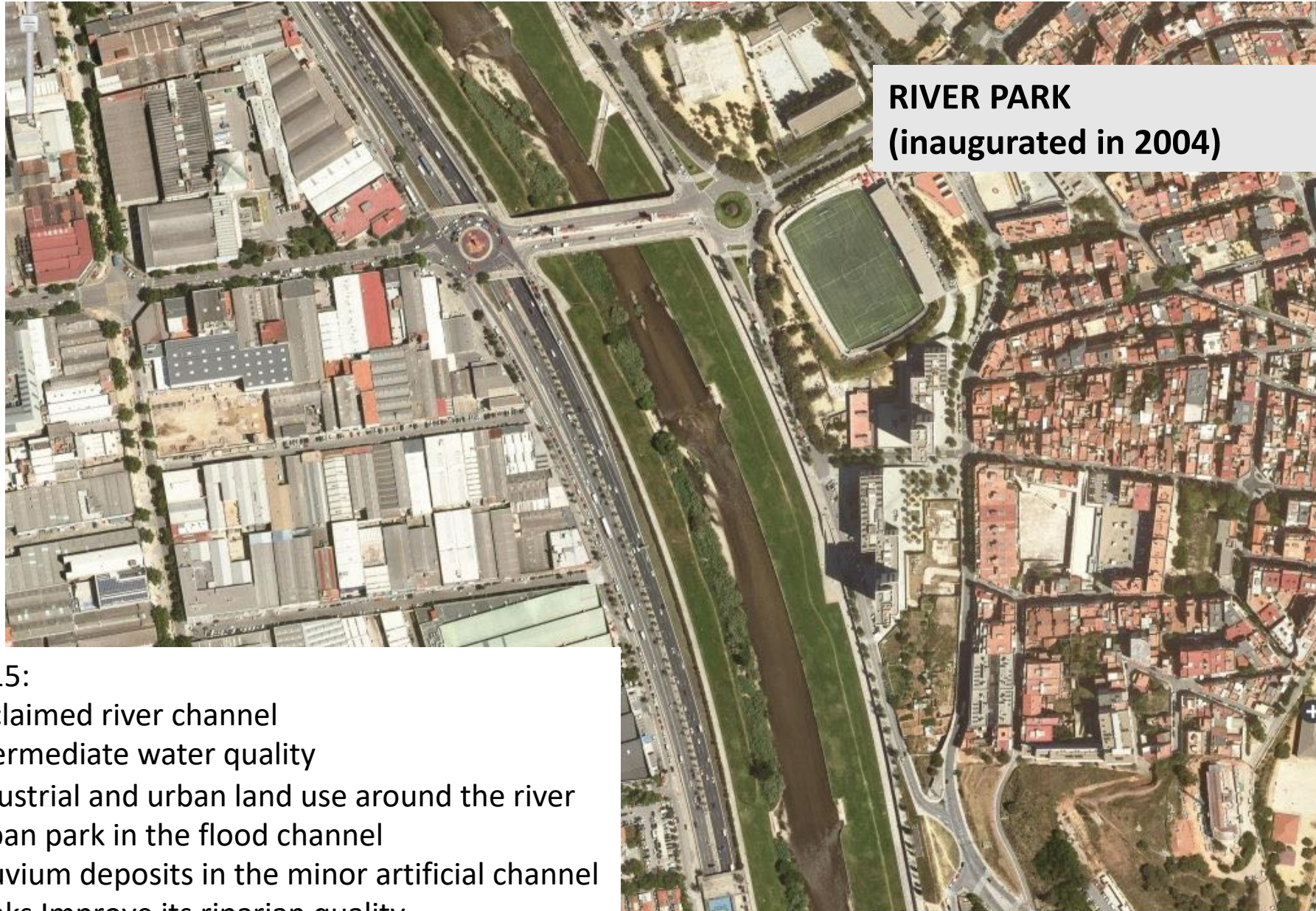


70's-80's the most polluted river in Europe

90's implementation of the 24 water treatment plants

2000 implementation of the WFD

The lowlands of the Besòs River



RIVER PARK
(inaugurated in 2004)

2015:

Reclaimed river channel

Intermediate water quality

Industrial and urban land use around the river

Urban park in the flood channel

Alluvium deposits in the minor artificial channel

Banks Improve its riparian quality.

The lowlands of the Besòs River



RIVER PARK

- 5.5km bike lanes
- >1M pedestrians and >1M cyclists
- Health-related economic cost reduction of 23.4 million €/year

The lowlands of the Besòs River



Dissemination activities and
citizen science projects



Photos: ElPeriódico / CrónicaGlobal

Objective

To present the historical data series of the water quality, biodiversity, riparian forest quality and fluvial habitat heterogeneity of the urban reach of the Besòs River from **official studies** and **data coming from dissemination activities and citizen science projects**



Photo: Generalitat de Catalunya

Methodology

OFFICIAL DATA



CITIZEN'S DATA



Methodology

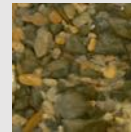
OFFICIAL DATA



IBMWP



QBR



IHF

CITIZEN'S DATA



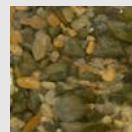
Water Quality



Fish diversity



Riparian Forest



Fluvial Habitat

Methodology



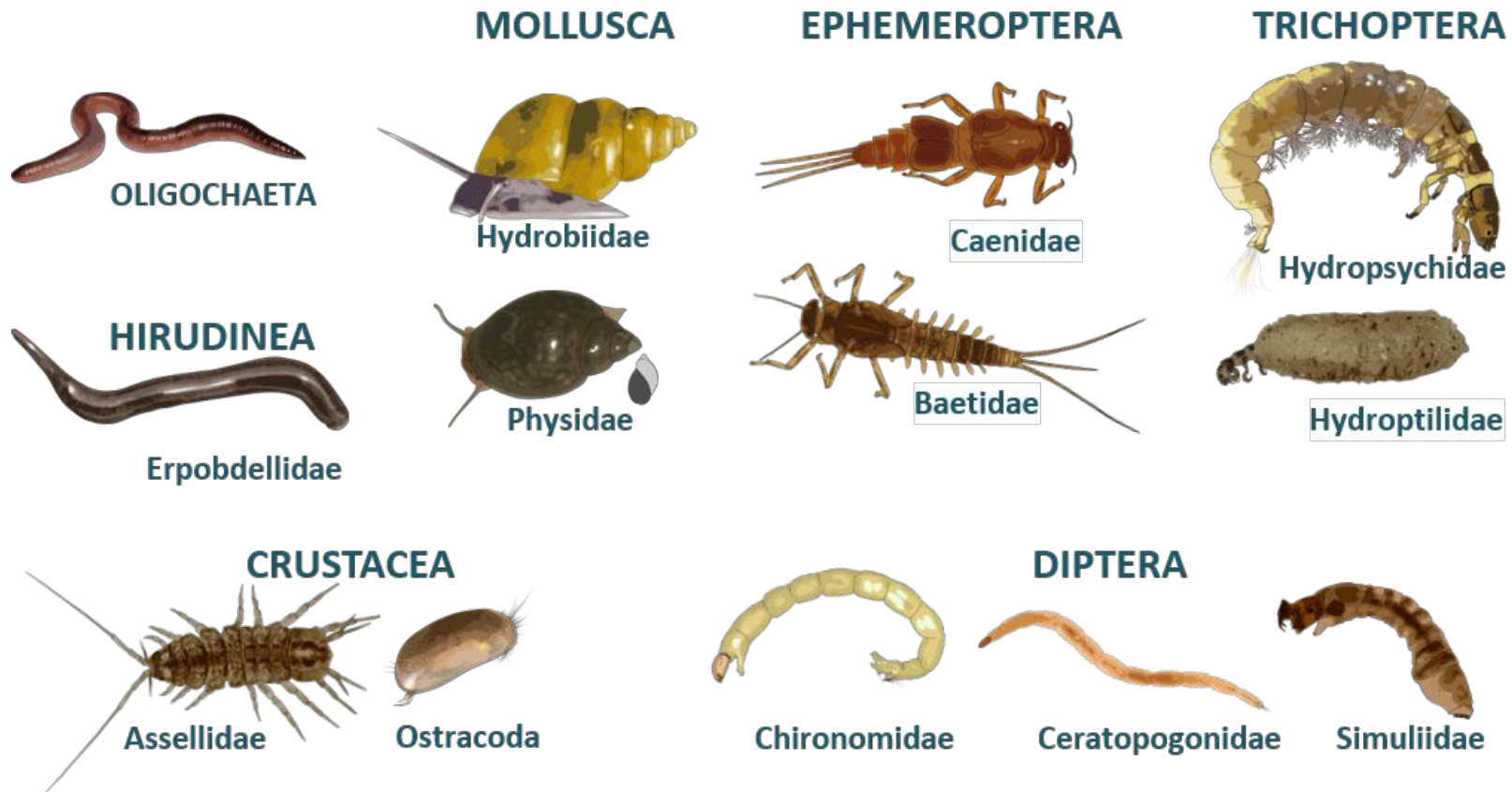
OFFICIAL DATA



CITIZEN'S DATA



Results



Drawings: Pau Fortuño. Source: <https://www.riunet.net>

Results

NATIVE FISHES



Anguilla anguilla



Barbus meridionalis



Squalius laietanus

NON-NATIVE FISHES



Cyprinus carpio

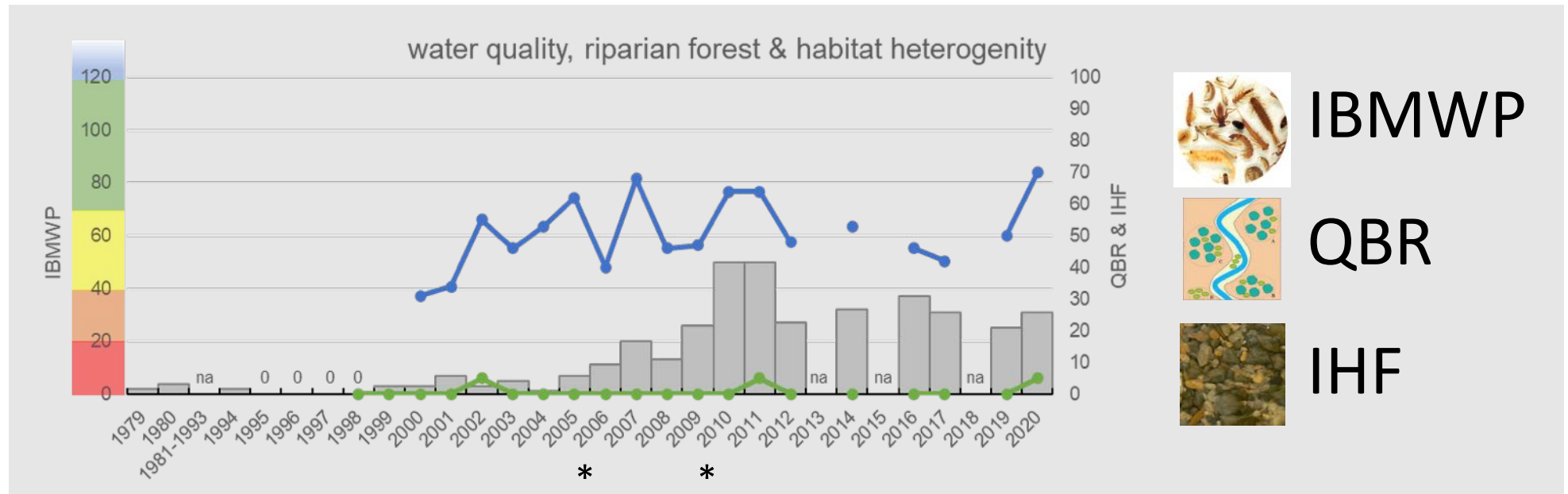


Cobitis paludica

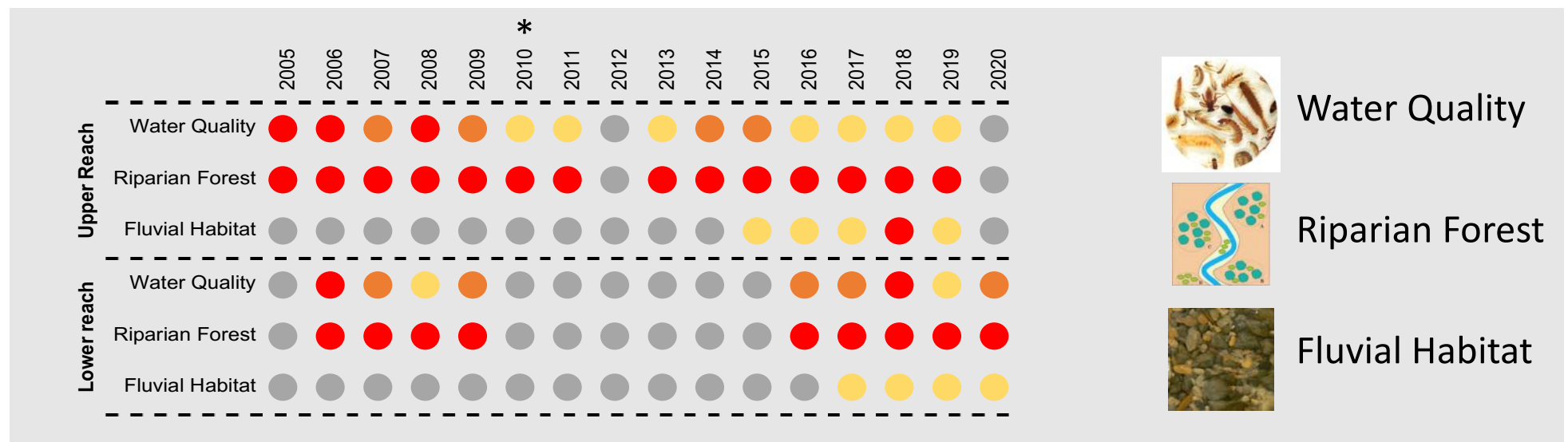
Drawings: Toni Llobet. Source: <https://coneixelriu.museudelter.cat/peixos.php>

Results

OFFICIAL DATA

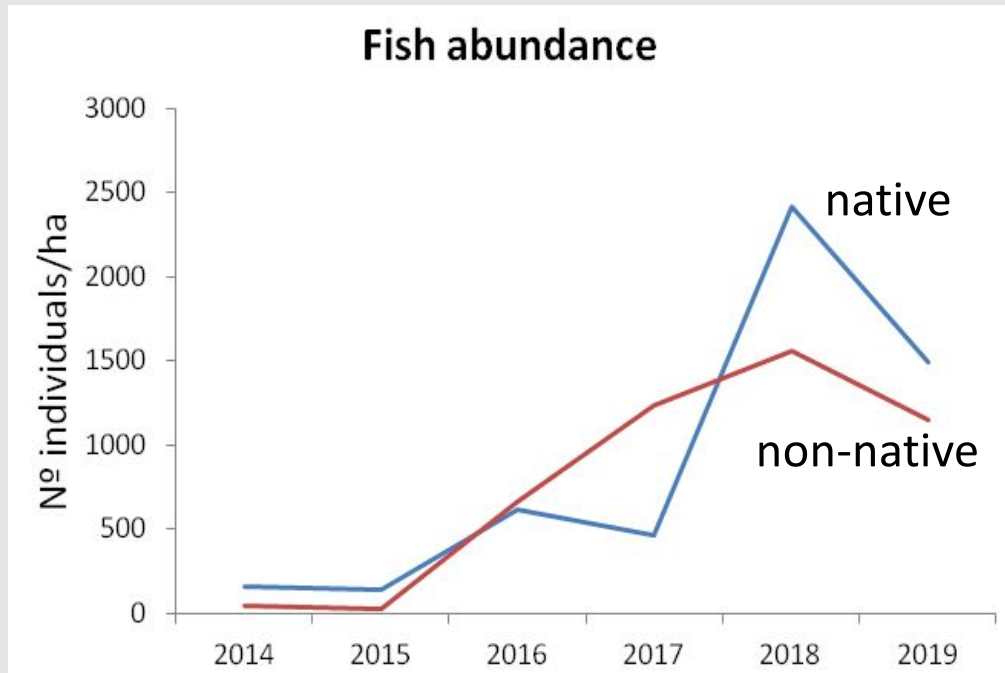


CITIZENS' DATA



Results

CITIZEN'S DATA



NO FISH BEFORE 2002



Conclusions

- The implementation of wastewater treatment plants contributed to improving the biological quality of the lower urban area of the Besòs River since late 90's.
- The restoration and rehabilitation actions in the lower urban area of the Besòs River did not improved the hydromorphological quality but have contributed to attract citizens.
- The achievement of a real daylighting requires to focus on the improvement of the ecological status and to keep raising citizen awareness on the ecological, educational and social importance of these urban reaches.
- Promoting data collection (by managers, scientist, scholarships and citizens) is key to engage citizens to these often-overlooked urban ecosystems and to monitor long-term changes on their ecological quality.

Acknowledgements



Photo: Generalitat de Catalunya



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