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The Northern Apennines District River Basin Management Plan: PoMs, Indicators, and Cross-compliance with the Floods Directive

*Europe- Inbo 2010
8th European Conference on the Implementation
of the Water Framework Directive
Megève 22-24 September 2010*



Florence

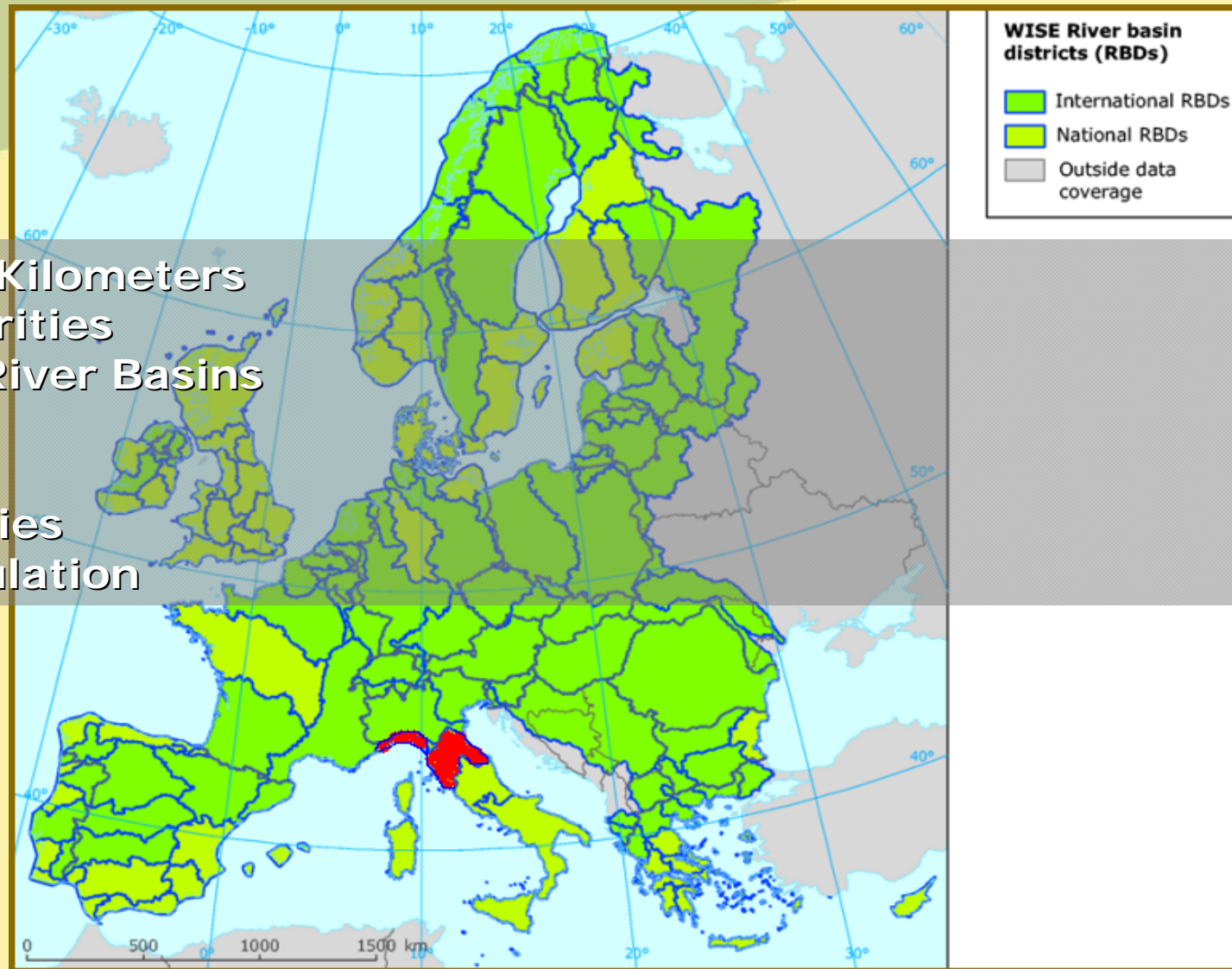


The Arno River Basin Authority



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40.000 Square Kilometers
11 Basin Authorities
48 Significant River Basins
7 Regions
29 Provinces
800 Municipalities
7.000.000 Population



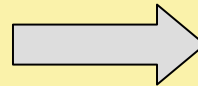
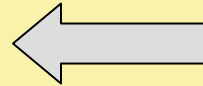
The Northern Apennines River Basin District

RBMP a new opportunity



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**River Basin
Management
Plan**



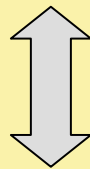
Regional Water
Protection Plans

Local Water Master
Plans

River Basin Plans

Regional Policies

National Policies



**European
Union**

The River Basin Management Plan offers the opportunity to summarize, coordinate and propose action strategies as regards to water management that comply with European standards

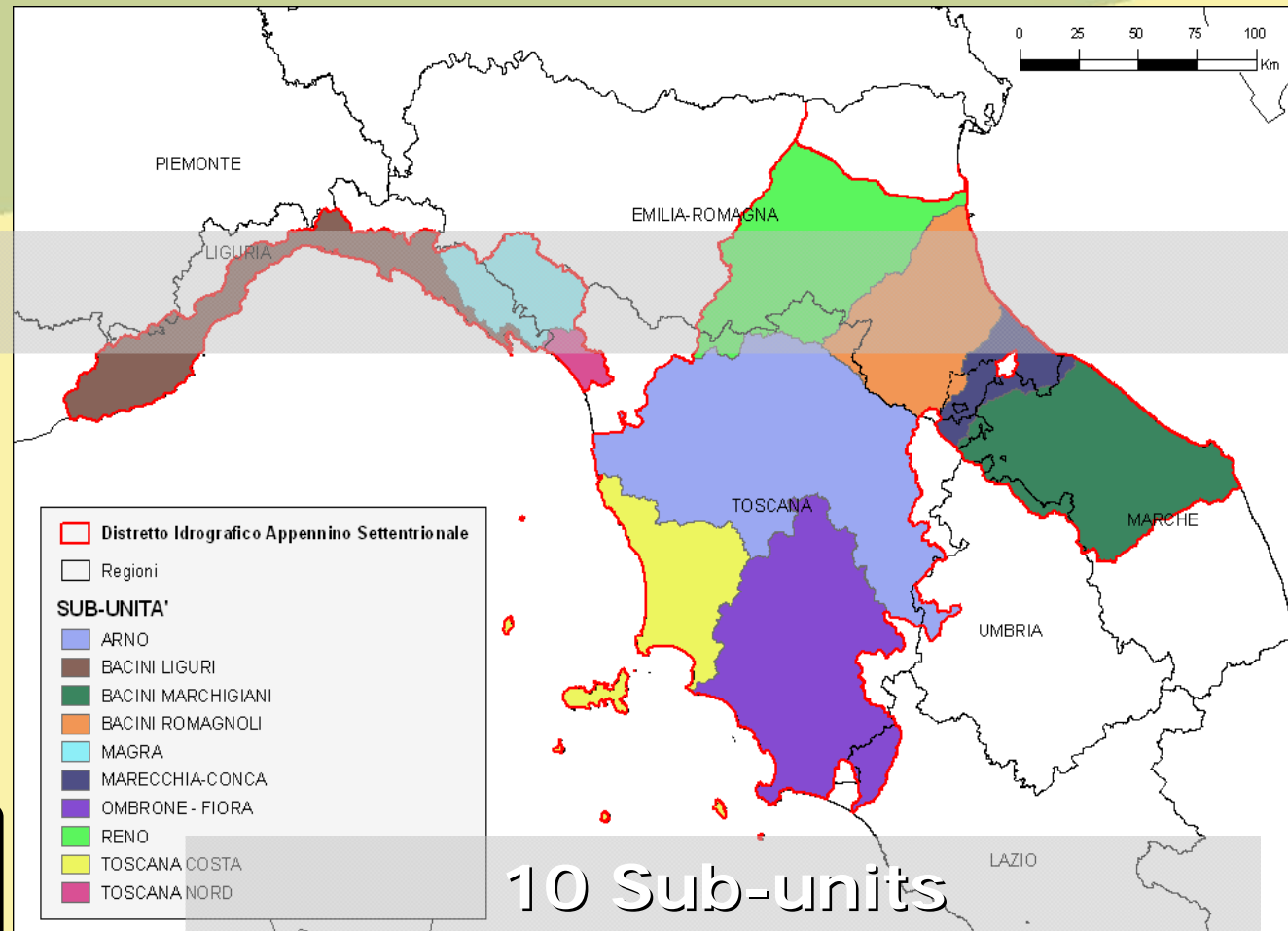


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Data Organization

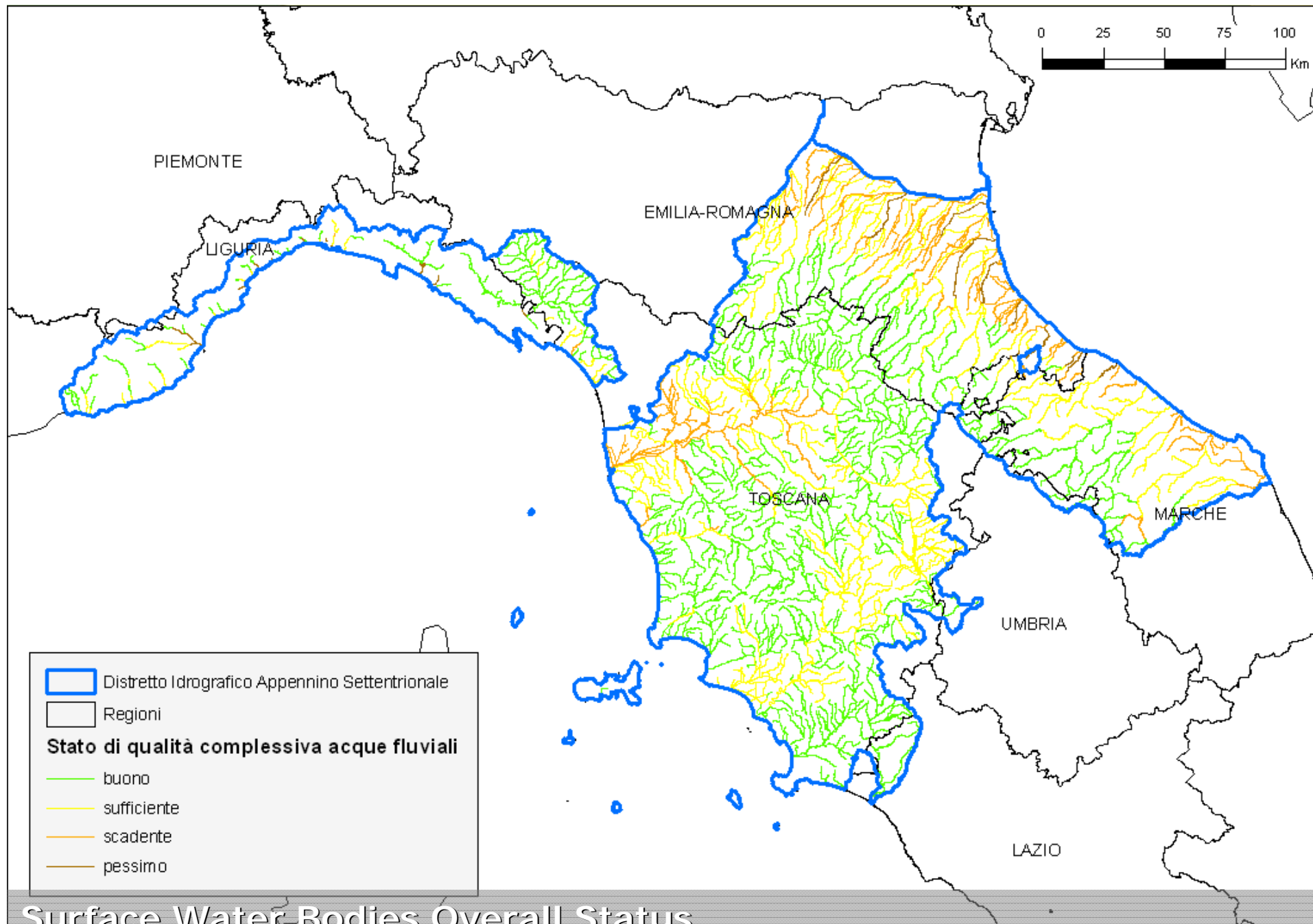
Water Bodies

GeoDataBase

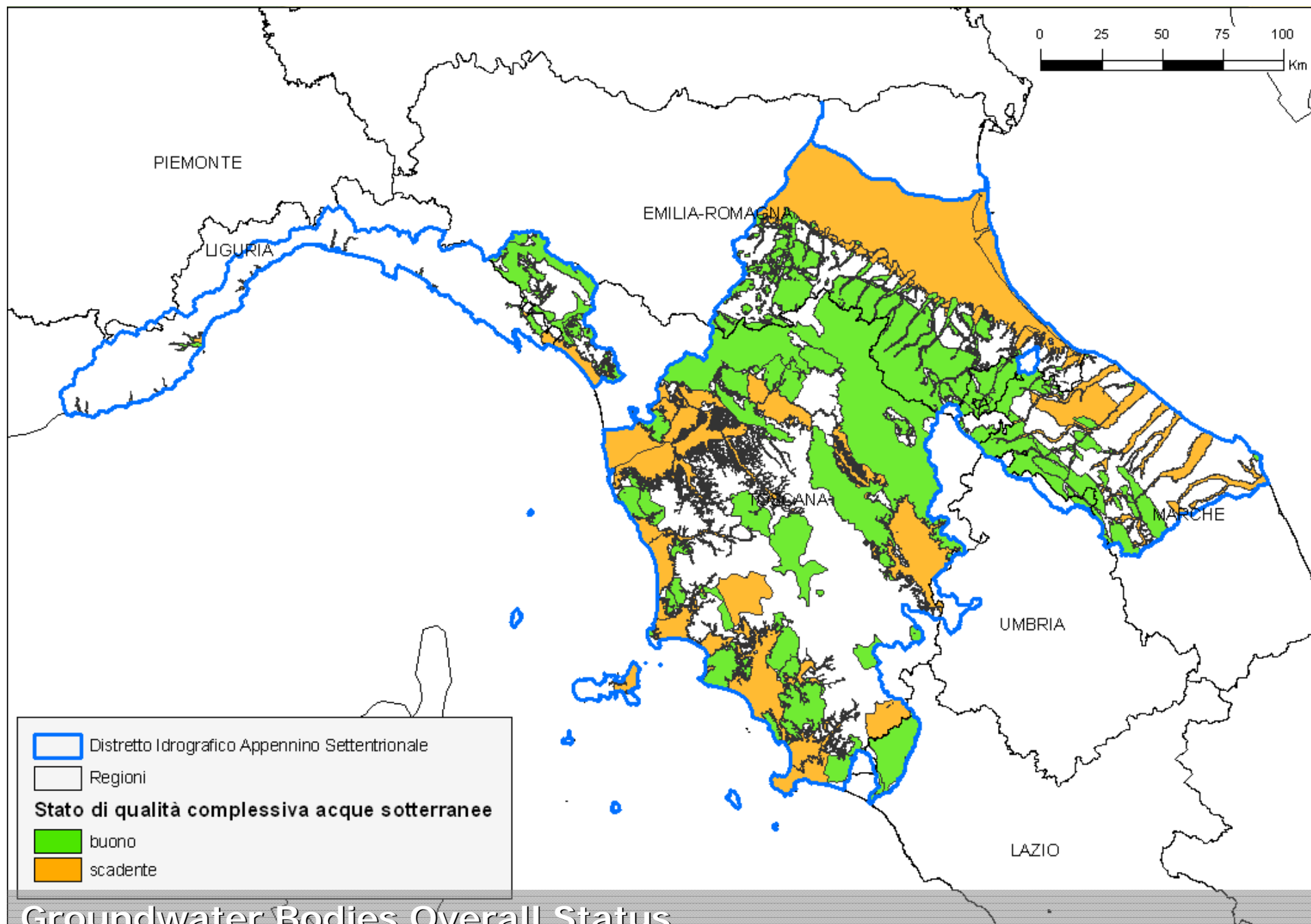


1392 Surface Water Bodies
192 Bodies of Groundwater

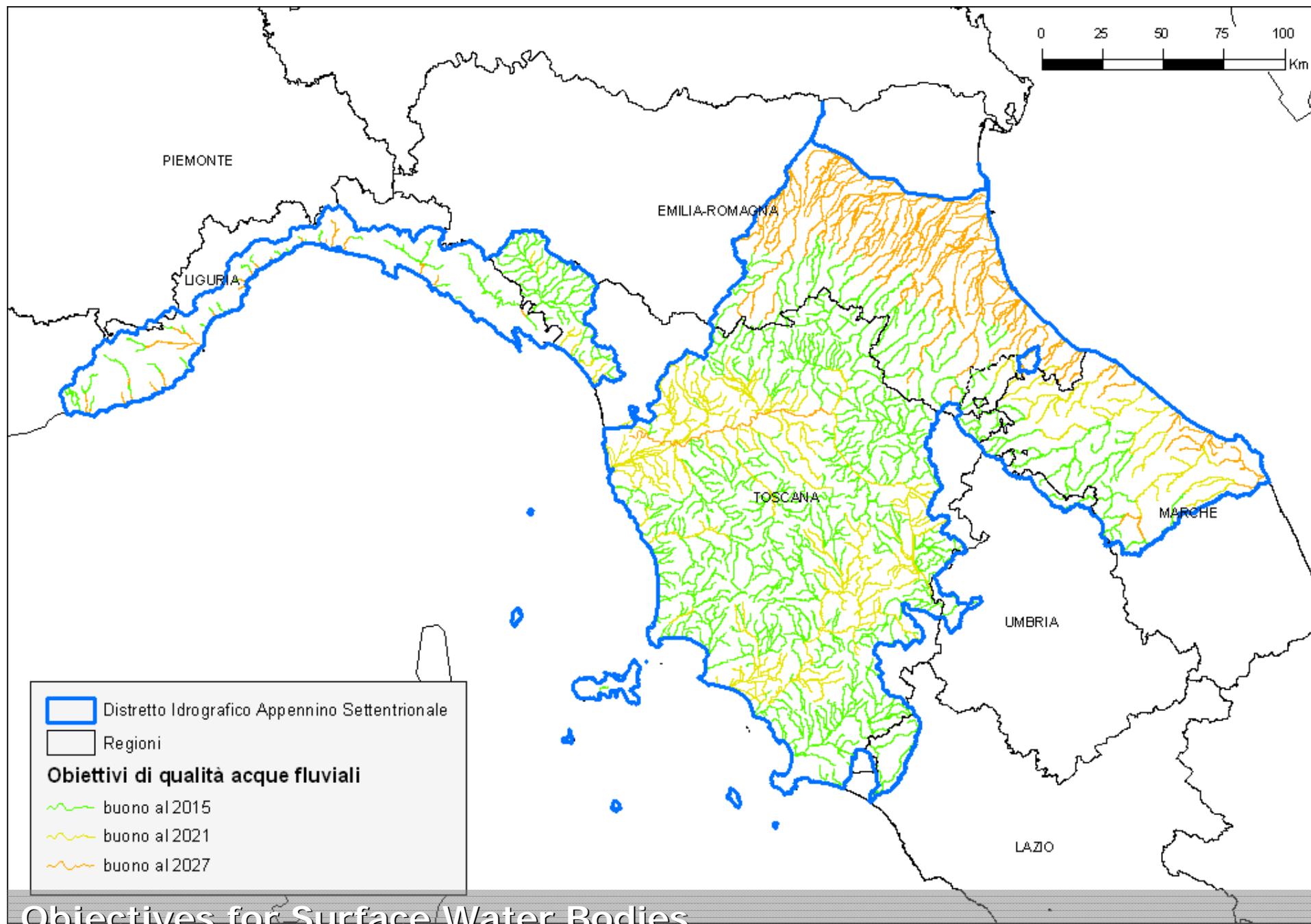
Data, Analysis, Objectives, Measures and any other Information coded and ranked by Water Body according to the WISE Standard



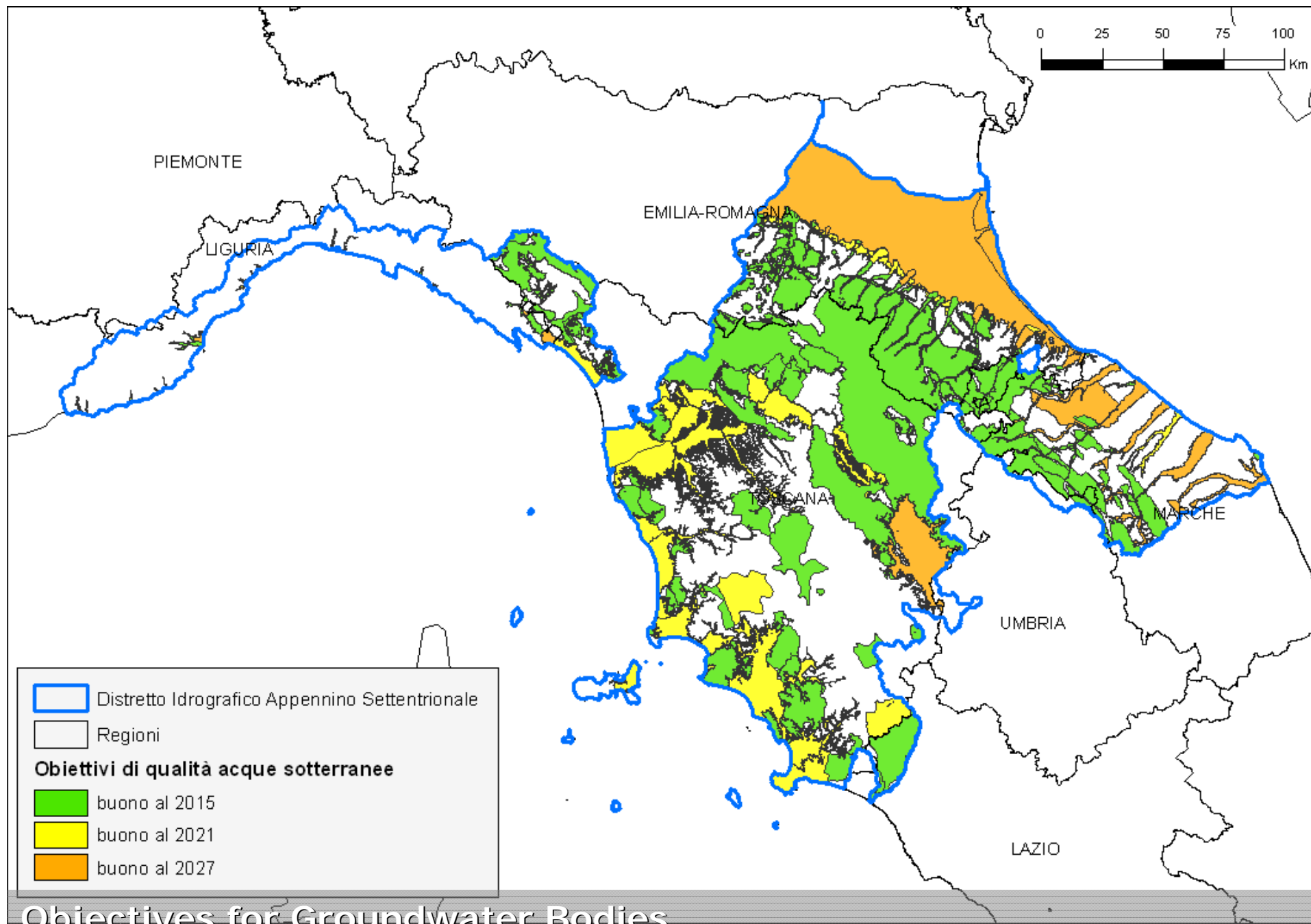
Surface Water Bodies Overall Status



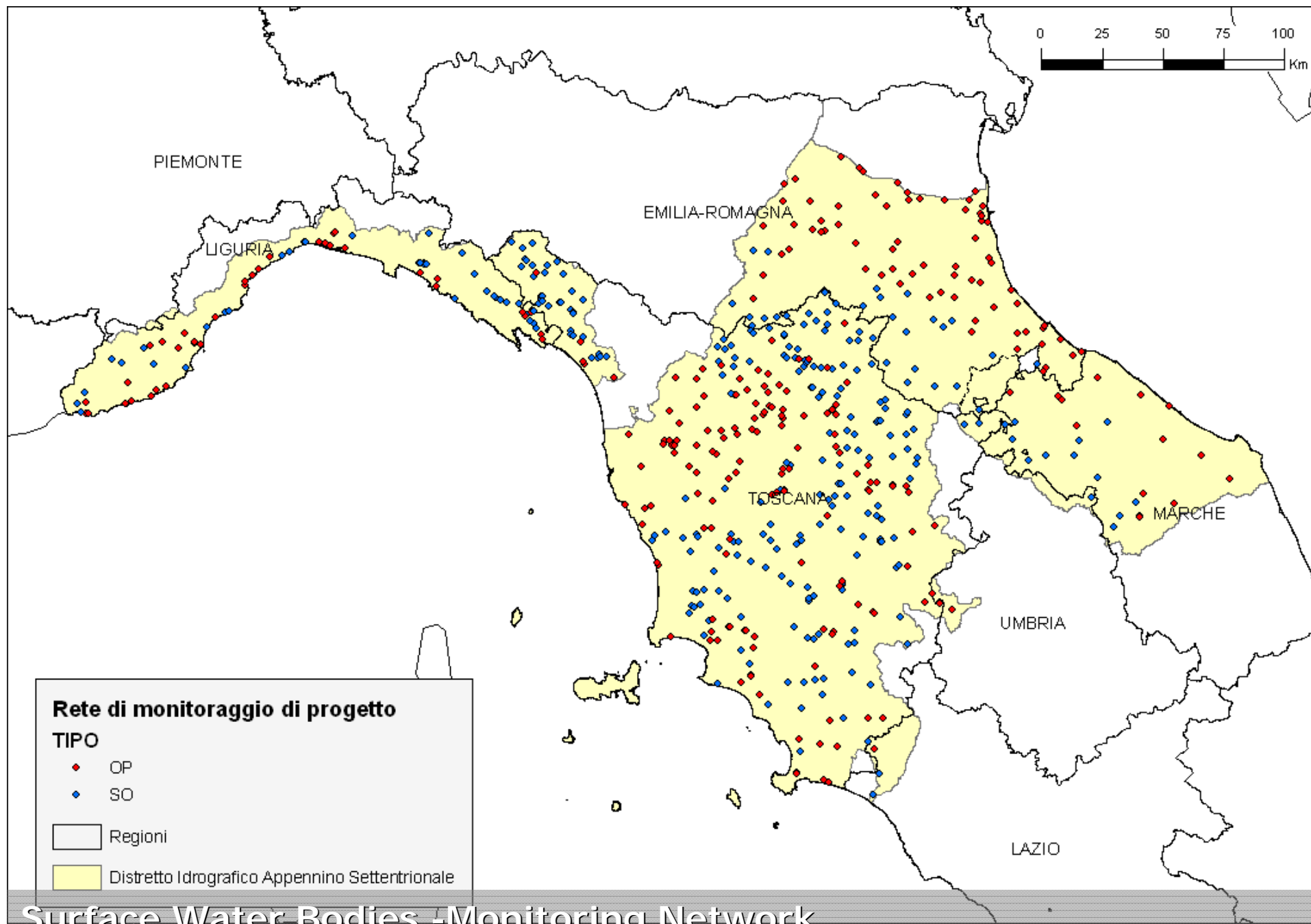
Groundwater Bodies Overall Status



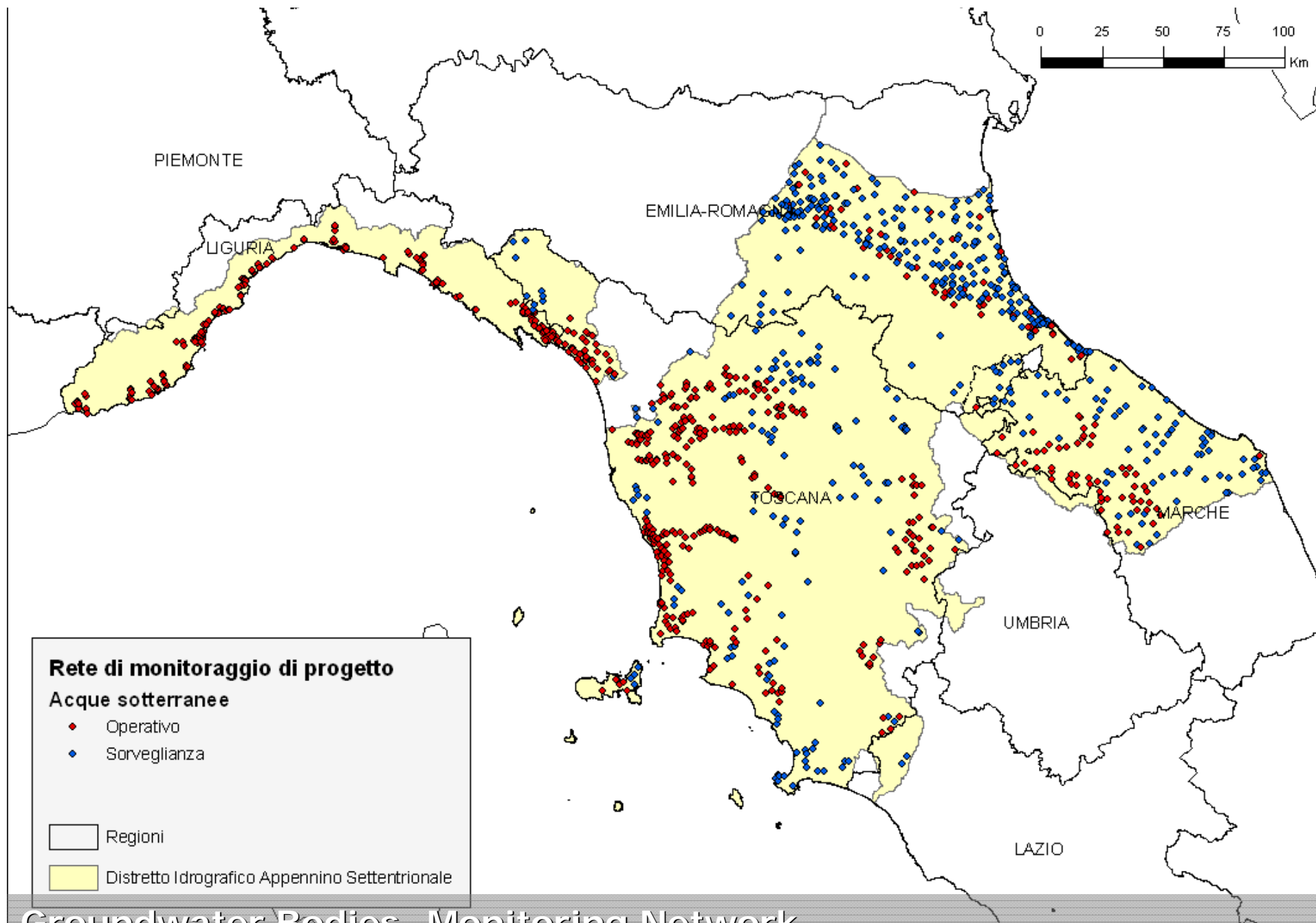
Objectives for Surface Water Bodies



Objectives for Groundwater Bodies



Surface Water Bodies -Monitoring Network



Groundwater Bodies - Monitoring Network



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List of Measures - Form n. 6

List of Measures with Information as regards to:

- Type of Measure (**Base/Supplementary Measures**)
- **Area of Action**
- **Type of Action** (Structural /Non-structural)
- **Timing**
- **Implementation Status**

Measures are organized by **Strategic Topics**:

- Water Bodies** Quality and Status of their Ecosystems
- Water Resource Use**
- Soil Use** and Geo-morphological Risk
- Environmental Balance** and Biodiversity Protection
- Water Management System Re-organization**, Partnership and Citizens services

[A] Water Bodies Quality and Status of their Ecosystems

Measure Status	Area of Action	Type of Action		Timing Implementation	
[A03] Protection of Surface Waters against Pollution	[1] Draft of Water Balance and MVF for each Basin comprised in the District (S)	Horizontal Measure	Non-structural Measure	1-5 years	ongoing/to be extended
	[3] Management of Abstractions and Water Releases (also by Reducing Licenzed Volumes) with the Objective of Environmental Protection and Production Processes Optimization. (S)	Horizontal Measure	Non-structural Measure	1-5 years	ongoing/to be further implemented
	[6] Controlled Management of Water Abstraction Licenses supported by the Monitoring Network (S)	Horizontal Measure	Non-structural Measure	5-10 years	ongoing/to be further implemented
	[19] Application of the Law on Waste Water Discharges (secondary or equivalent treatment) to sewages of areas with a population ranking from 2.000 to 15.000 Equivalent Inhabitants (EI) , i.e between 2.000 and 10.000 EI as regards to sensible areas, and implementation of appropriate treatments in accordance with Regional Laws, if existing (B)	Civil	Structural Measure	1-5 years	ongoing

List of Measures with Distinction between **Base Measures** and **Supplementary Measures**



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Water Body Form

Codice	ER123
Nome	T. SAMOGGIA
Categoria	Fiumi
Subunità	RENO
Regione	EMILIA-ROMAGNA
Tipo	6IN8F-10
Natura	Naturale

Pressioni	1.5 Point - Other 2.2 Diffuse - Agricultural
Aree protette	IT4050016 (SIC) ZVN007 (ZVN)
Stato	sufficiente
Obiettivo	buono al 2027
Misure	4

Information is linked to each **water body**:

- Geometry
- Geographical Mapping
- Type
- Pressures
- Monitoring
- Protected Areas
- Quality Status
- Objective
- Measures





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Water Body Form

Codice	ER123	Pressioni	1.5 Point - Other 2.2 Diffuse - Agricultural
Nome	T. SAMOGGIA	Aree protette	IT4050016 (SIC) ZVN007 (ZVN)
Categoria	Fiumi		

[3962] Municipality of Savigno. Sewerage Modernization in Cà dell'osta , Rodiano, San Prpspero. [Int. RER 8118].	Regional Water Protection Plan	basin (SAMOG GIA)	[A] Quality of Water Bodies and Status of their Ecosystems	[A03] Surface Water Protection Against Pollution	[29] Completion and Maintainability of Sewerage Systems (B/S)
[3963] Municipality of Castello SERRAVALLE . Sewerage Modernization Castelletto-Capoluogo. [Int. RER 8003].	Regional Water Protection Plan	Basin (SAMOG GIA)	[A] Quality of Water Bodies and Status of their Ecosystems	[A03] Surface Water Protection Against Pollution	[29] Completion and Maintainability of Sewerage Systems (B/S)
[3964] Municipality of MONTE SAN PIETRO. Remediation of Mongiorgio –Beghelli Street in Mongiorgio. [Int. RER 8694].	Regional Water Protection Plan	Basin (SAMOG GIA)	[B] Water Resource Use	[B02] Use rules	[108] Interventions for Leakage Reduction and (S) aqueducts maintainance
[3965] Municipality of CASTELLO DI SERRAVALLE. Waste Water Treatment Plant in Cà de Fabbri. [Int. RER 8458].	Regional Water Protection Plan	Basin (SAMOG GIA)	[A] Quality of Water Bodies and Status of their Ecosystems	[A03] Surface Water Protection Against Pollution	[32] Urban Waste Water Treatment Plants, improvement of technical features(B)



Measures by water body

Intervention	Reference Plan	Basin	Topic	Sub-topic	Measures Form. 6
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A. **Strategic Planning Process**

1. Assessment of the Current Situation
2. Identification of the Strategic Objectives
3. Identification of Strategies
4. Strategic Plan Draft, qualitative/quantitative aspects



B. Economic Sustainability Assessment Tools

1. Economic Financial Plan
2. Integrated Indicators System
3. Benchmarking



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Test of the Economic Analysis Methodology on a Pilot Area

Pilot Area for the Economic Analysis

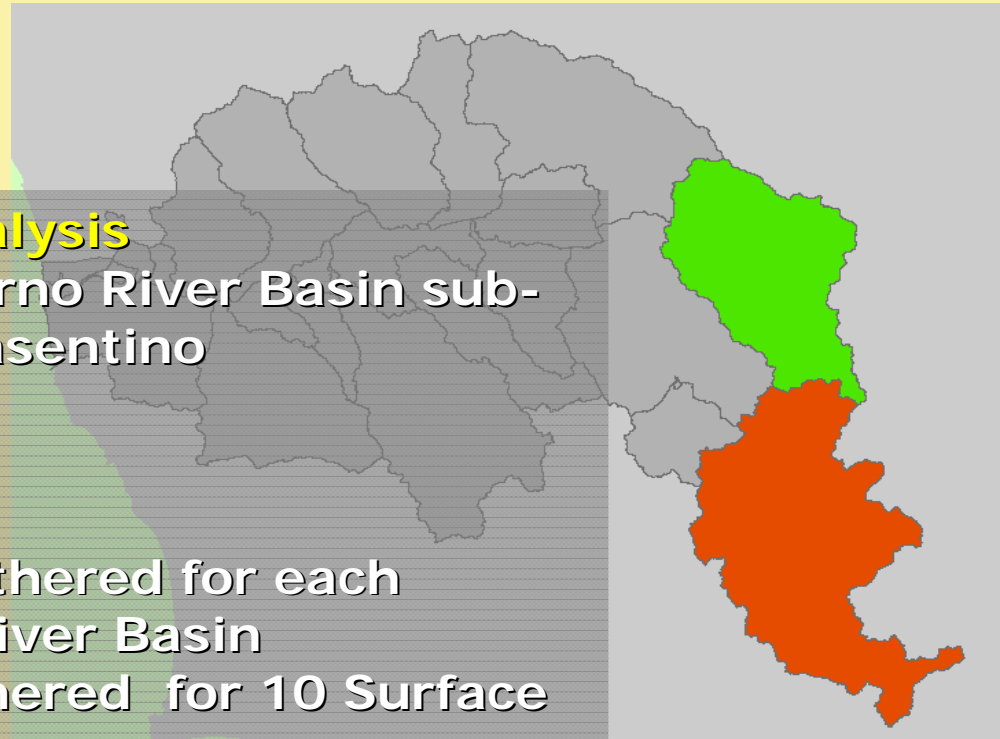
- 2 River Basins, a part of the Arno River Basin sub-unit: Valdichiana Valley and Casentino
- 4 Aquifers

Data for the Economic Analysis

- Socio-economic Data were gathered for each Municipality belonging to the River Basin
- Idrogeological Data were gathered for 10 Surface Water Bodies and for 4 Aquifers

Outputs of the economic analysis

- Economic Financial Impact
- Contribution to cost recovery
- Hypothesis of Regionalization at District Scale



Additional Monitoring Indicators

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1. *Number of minimum vital flow over-runs*
2. *Number of abstractions*
3. *Number of hydraulic defence actions using environment-friendly techniques in relation total actions*
4. *Number of actions aimed at bettering treatment plants functionality in relation to the total number of treatment plants*
5. *Abatement Trends as for BOD, COD, Nitrogen and Phosphorous in most relevant treatment plants*
6. *Number of installed piezometers in relation to surface area (pollution)*
7. *Volume of abstracted water/irrigated area*
8. *Number of remediation actions*
9. *Number of installed piezometers in relation to surface area (water balance)*
10. *Alternative sources development trends and water re-use*



Over and Above the Monitoring Activity under Directive 2000/60/EC, 20 Additional Indicators were Identified that are mainly focused on Measurable Factors with the Overall Aim of Assessing the Measures Implementation Status and their Impact on the Environment and the Social System.



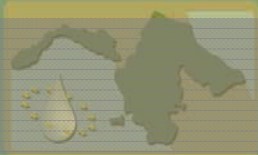
Additional Monitoring Indicators

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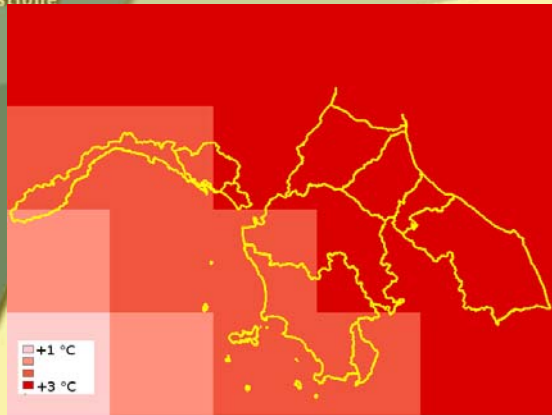
11. *Number of Abstraction Points compared to Area/Surface*
12. *Aqueducts Trends in Leakage in Relation to Distributed Water*
13. *Differentiation Percentage of Abstraction Sources*
14. *Groundwater Abstraction Volume per Unit Area in Relation to Subsidence Phenomena*
15. *Soil Use Change in Degraded Areas*
16. *Decrease in the Percentage of Hydraulic Risk Areas*
17. *Stretch of Water Body or Coastal Water Undergoing Re-naturalization in Relation to Stretches Interested by Artificial Work*
18. *Number of Harmful Allochthonous Species in relation to the Number of Catalogued Allochthonous Species*
19. *Number of Piezometers in Relation to Area*
20. *Response Time*
21. *WEB User Satisfaction*

Over and Above the Monitoring Activity under Directive 2000/60/EC, 20 Additional Indicators were Identified, Focused on Measurable Factors with the Overall Aim of Assessing the Measures Implementation Status and their Impact on the Environment and the Social System.

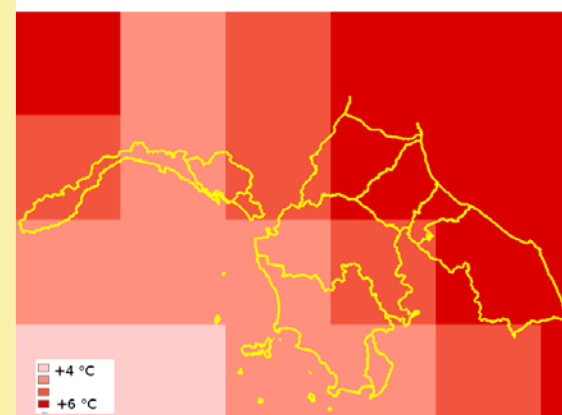


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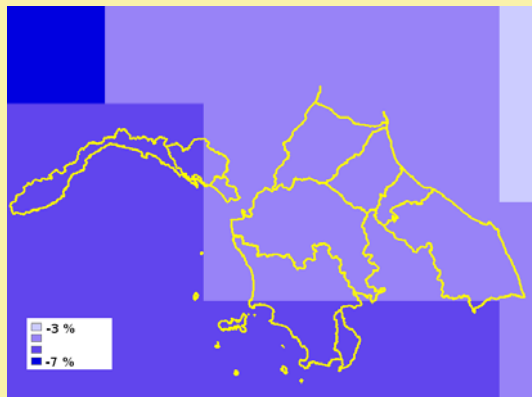
Climate Change Scenarios and cross-compliance with the Floods Directive



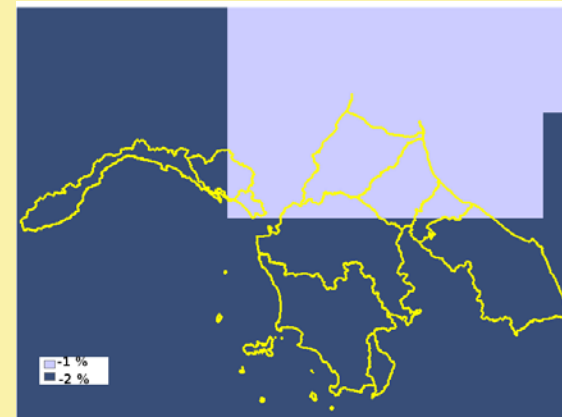
Scenario IPCC A2 – Winter Average Temperature Change (Dicember-January-February) – Time Span 1961:1990 - 2071-2100



Scenario IPCC A2 – Summer Average Temperature Change (June –July - August) – Time Span 1961:1990 - 2071-2100



Scenario IPCC A2 – Winter Average Rainfall Change (December-January - February) – Time Span 1961:1990 - 2071-2100

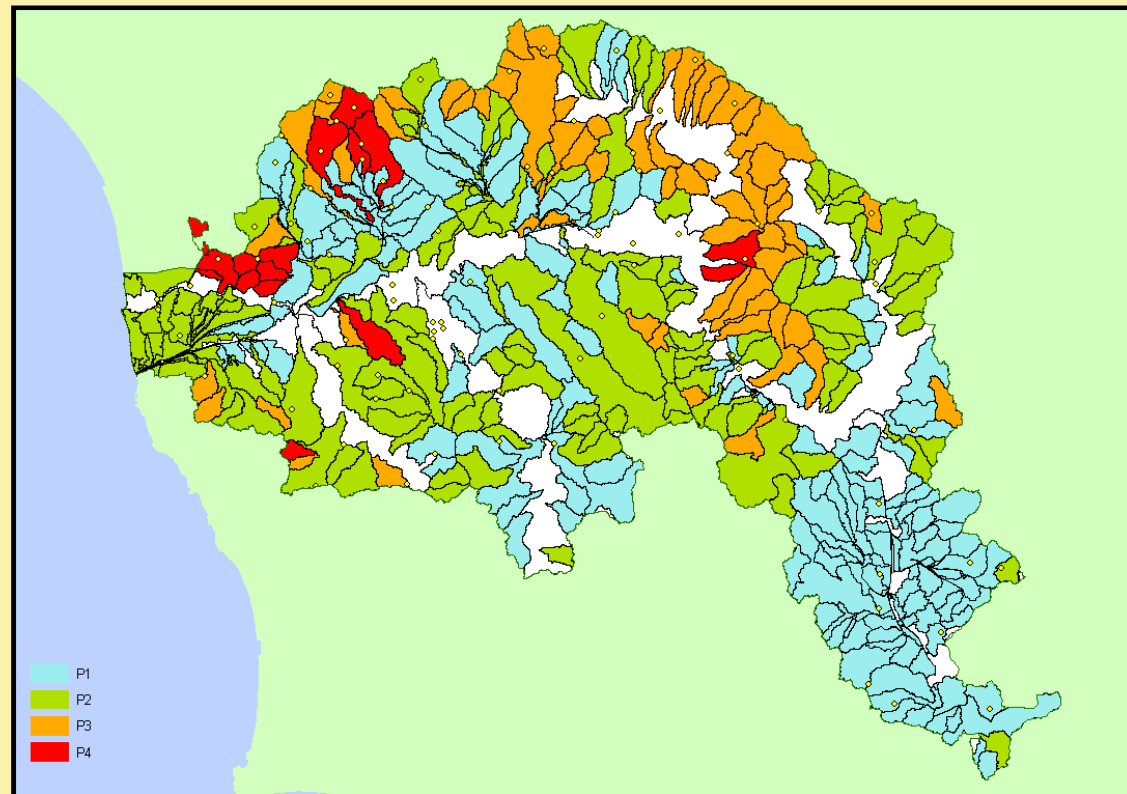


Scenario IPCC A2 – Summer Average Rainfall Change (June-July-August) – Time Span 1961:1990 - 2071-2100



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Climate Change Scenarios and Cross-compliance with the Floods Directive



Flash Floods Hazard in the Arno River Basin



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Thanks for your attention!!



Genova



Bologna



Pisa