



Natural Water Retention Measures

Web-based knowledge
Community of practice
NWRM practical guide



Pilot Project - Atmospheric Precipitation - Protection and efficient use of Fresh Water: Integration of Natural Water Retention Measures in River basin management

Service contract n°ENV.D.1/SER/2013/0010

A contrasting view: NWRM in the Mediterranean region

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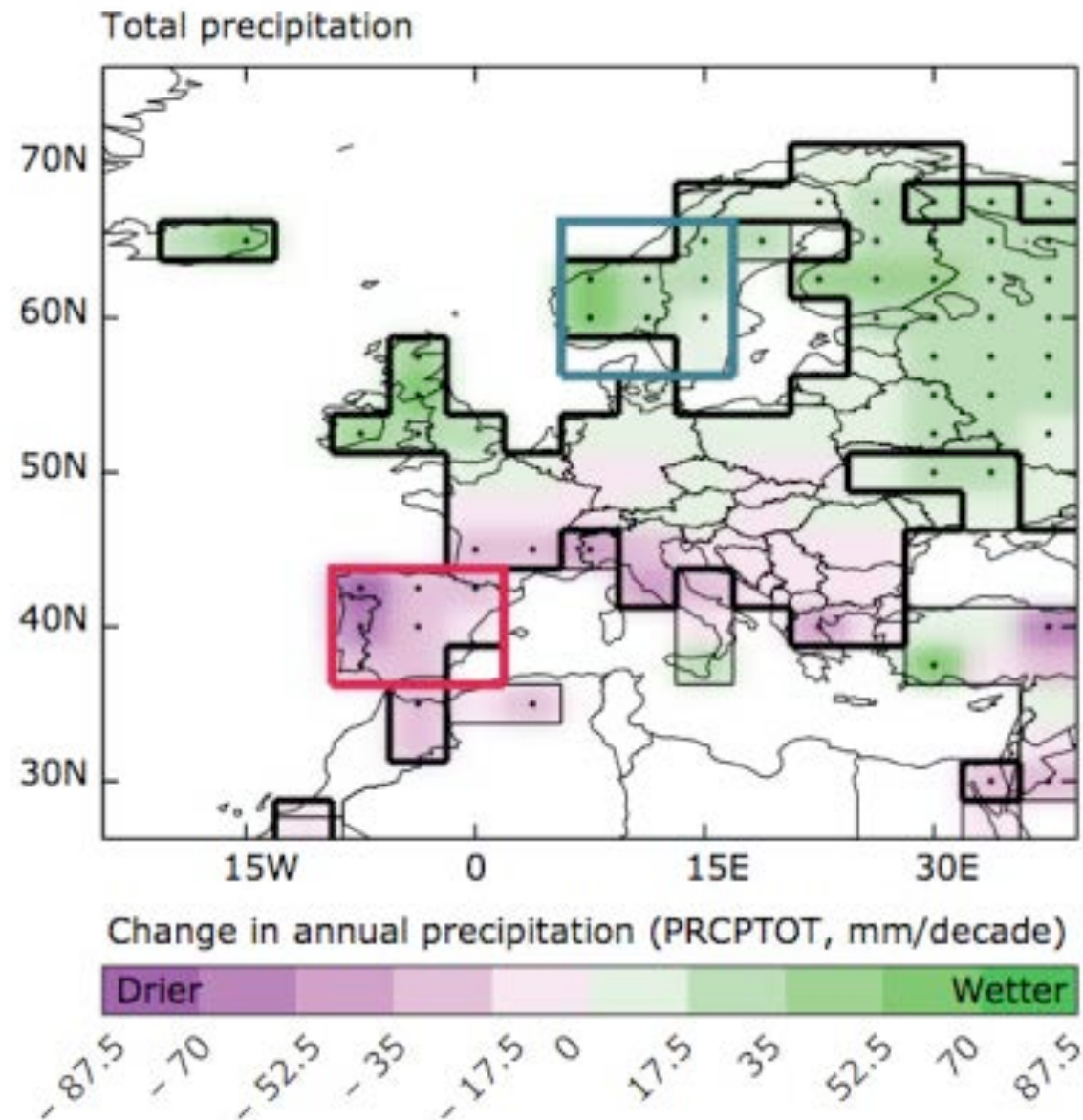




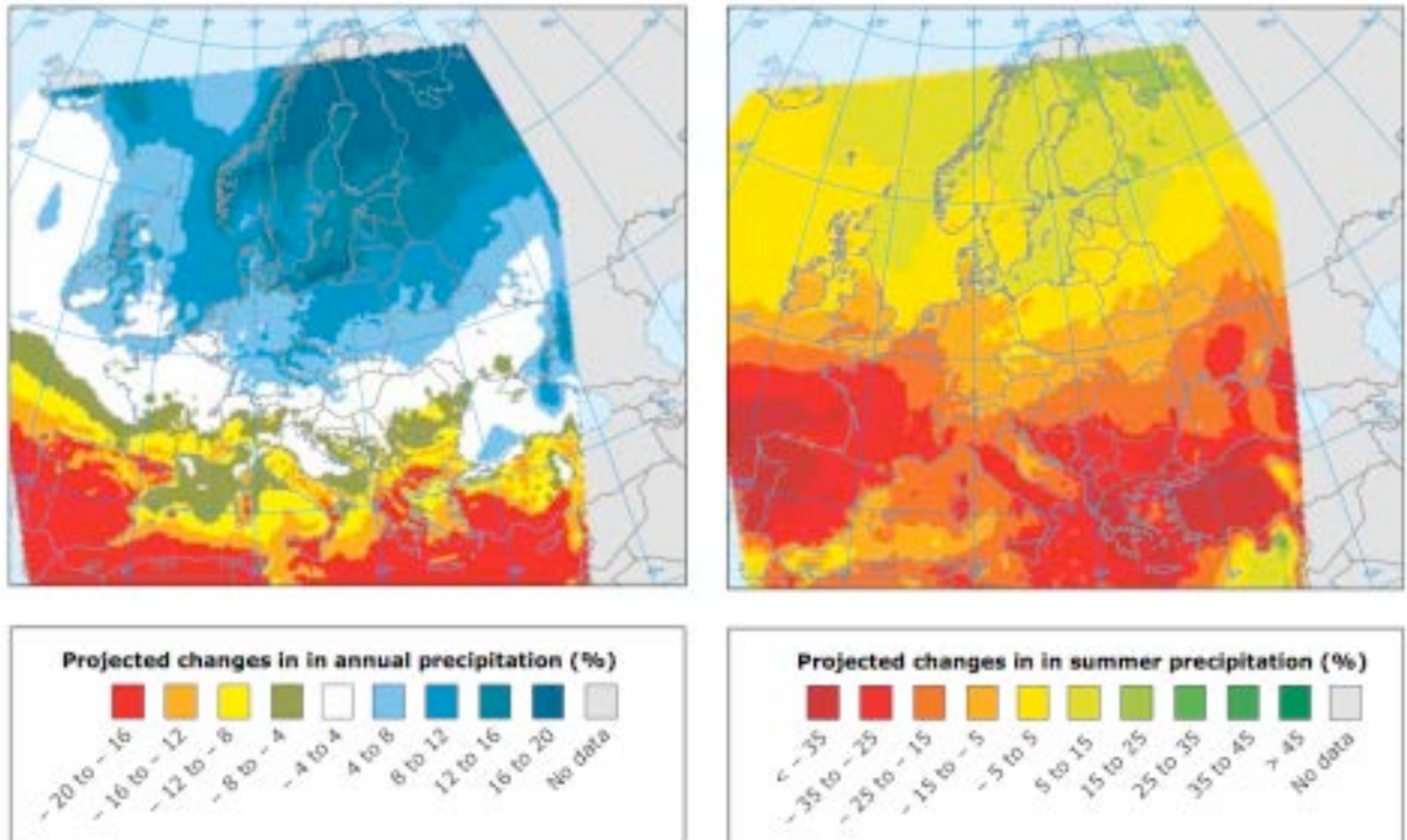
Mediterranean specific features

- (Extreme) spatiotemporal rainfall and runoff patterns.
- Many streams are intermittent or ephemeral.
- Intensive use of water resources (mostly in agriculture).
- Significant hydromorphological alterations.
- Increasing water scarcity and drought risk exposure.
- Oversized infrastructures and increasing idle facilities.
- Significant opportunities to reduce water use or enhance water availability.

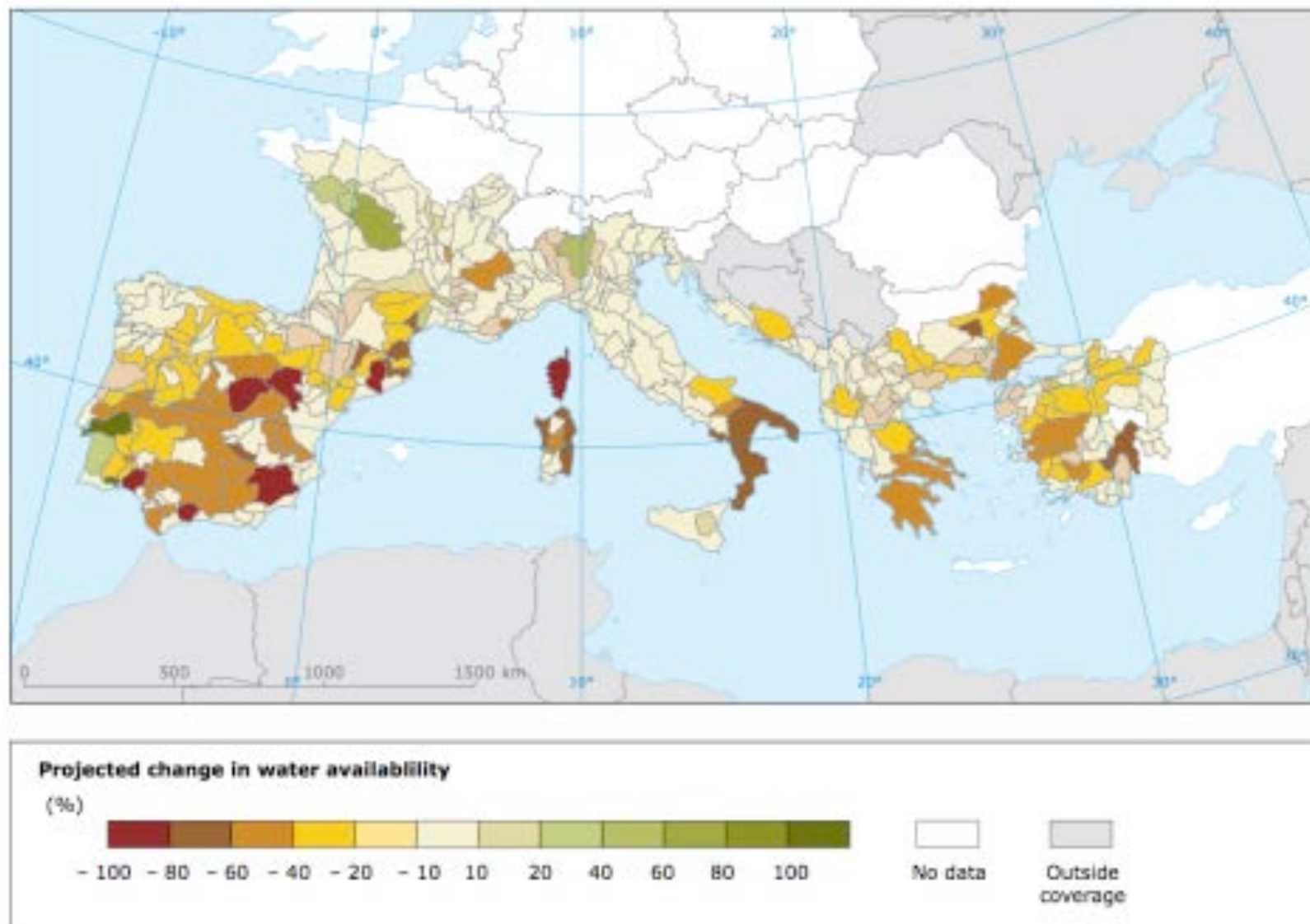
Trends in annual precipitation across Europe (1960 – 2012), EEA (2012)



Projected changes in annual (*left*) and summer (*right*) precipitation (%) between 1961 -1990 and 2071 – 2100, EEA (2012)



Projected change in water availability for irrigation in the MED region by 2071 – 2100, EEA (2012)





WATER STRESS BY COUNTRY

ratio of withdrawals to supply

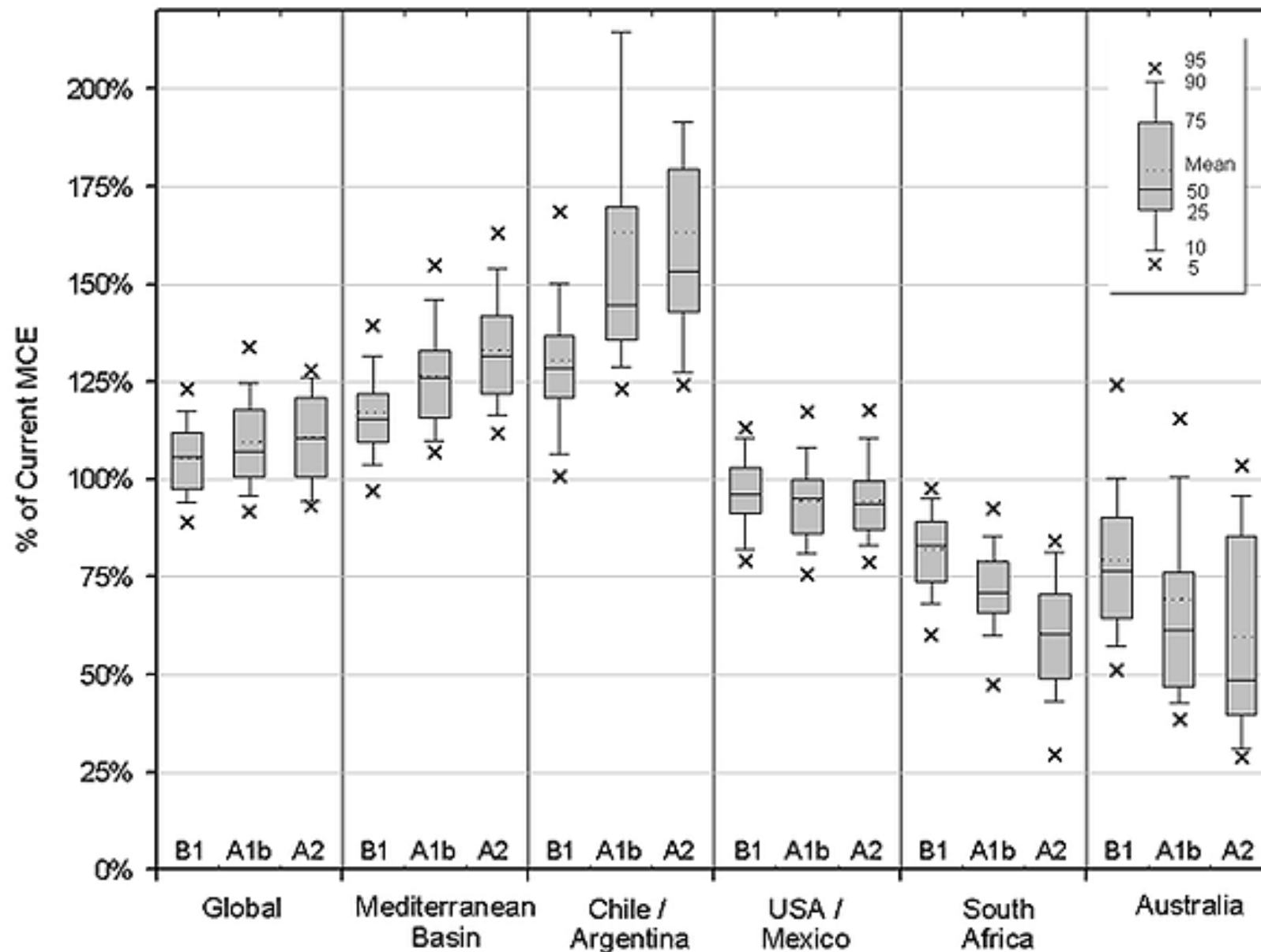
- Low stress (< 10%)
- Low to medium stress (10-20%)
- Medium to high stress (20-40%)
- High stress (40-80%)
- Extremely high stress (> 80%)

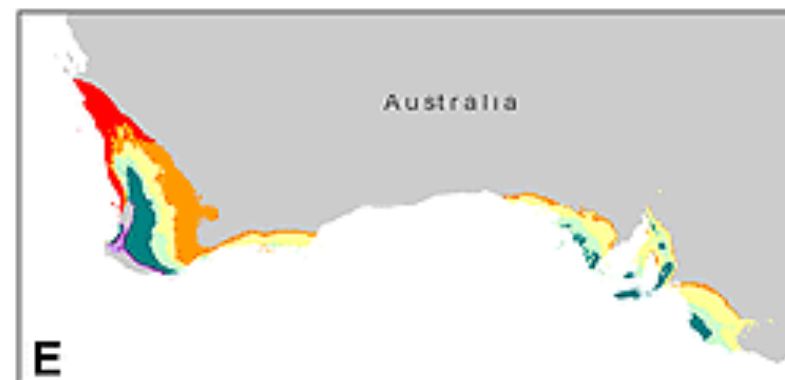
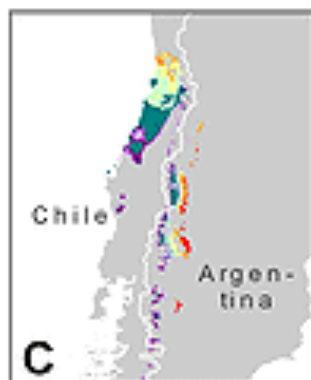
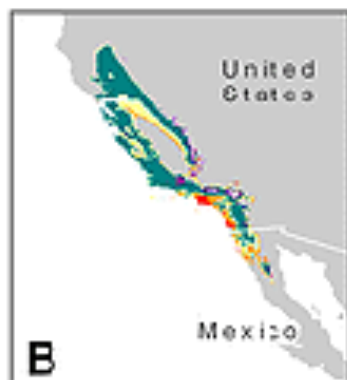
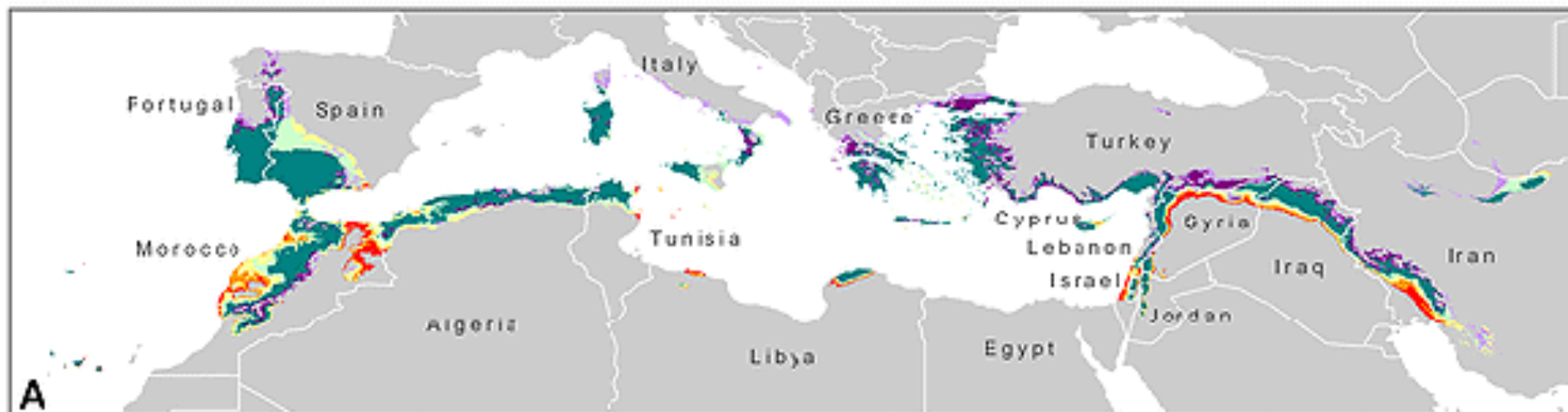
This map shows the average exposure of water users in each country to water stress, the ratio of total withdrawals to total renewable supply in a given area. A higher percentage means more water users are competing for limited supplies. Source: WRI Aqueduct, Gassert et al. 2013

 AQUEDUCT

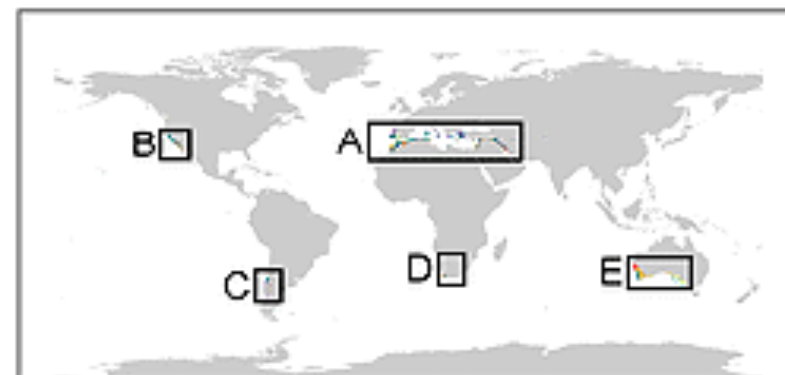
 WORLD RESOURCES INSTITUTE

Relative size of the projected future (2070–2099) to the current (1960–1989) MCE (Mediterranean Climate Extent), IPCC (2007)





Legend



Overview of water stress in the Mediterranean basin, highlighting water exploitation as well as existing and planned desalination plants

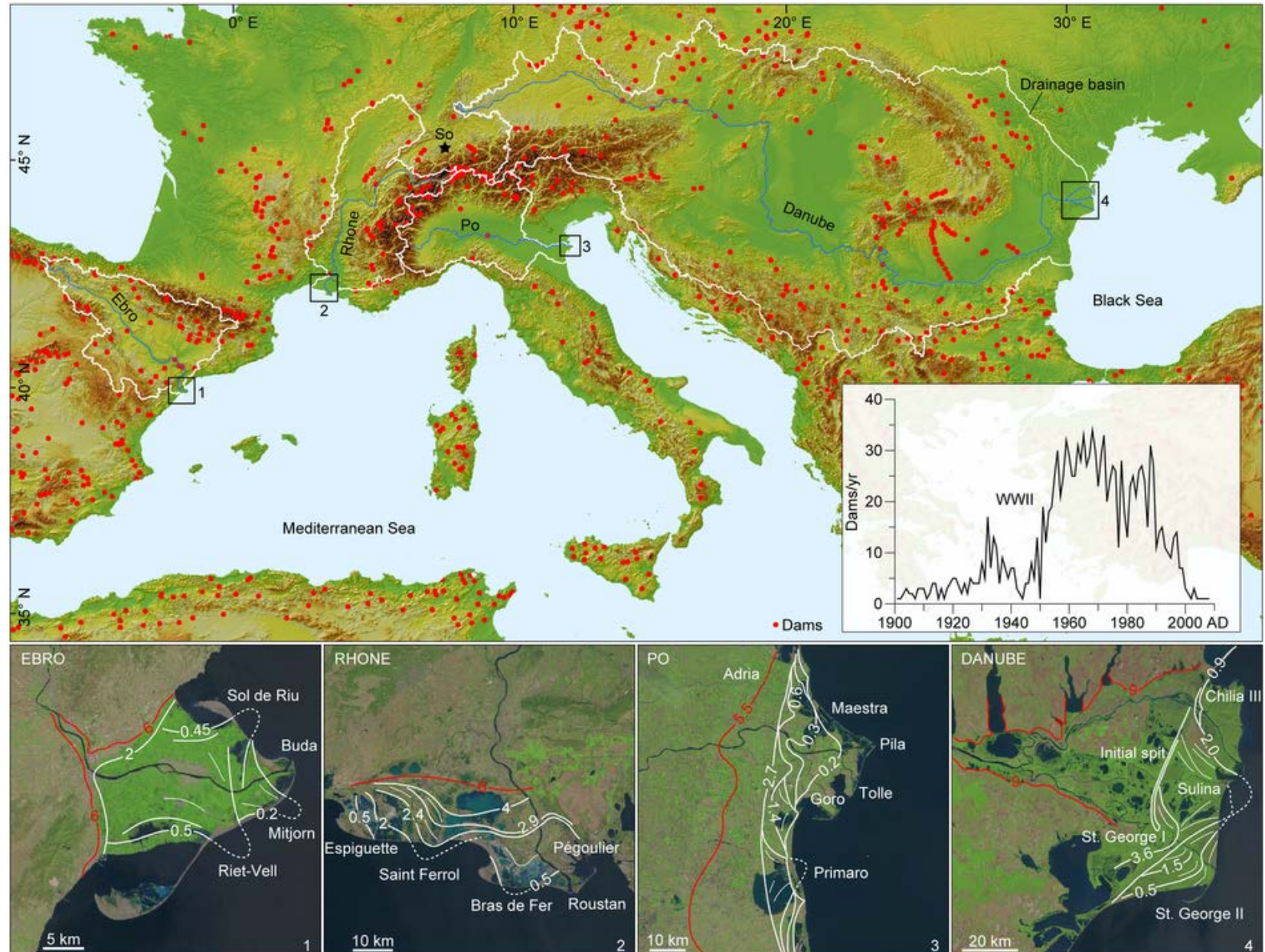
- GRID-Arendal (2013)

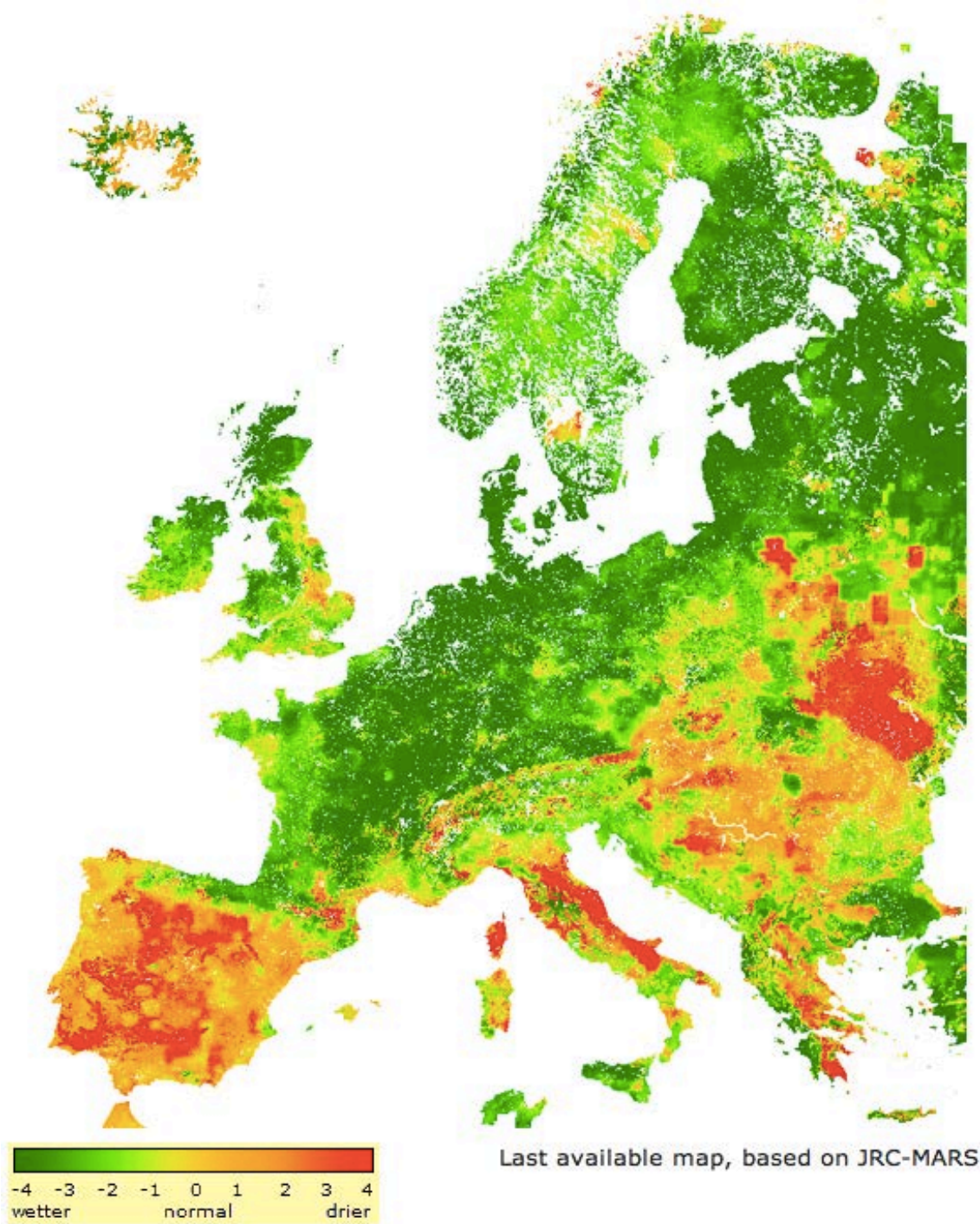


Water stress in the Mediterranean basin



Location of the four delta systems with catchments and growth phases, Maselli & Trincardi (2013)







Some NWRM applications to be assessed in the NWRM Mediterranean Workshop in Madrid (Jan 28-29)

- ◆ MED NWRM applications from RESTORE LIFE+ project (Italy, France, etc.).
- ◆ River and floodplain restoration in Spain – natural water retention for combined outcomes (flood risk management, improved eco-hydrological connectivity and recovery of priority river habitats).
- ◆ Reforestation of the abandoned Asbestos Mine in the Amiantos Area, Cyprus.
- ◆ Post-fire water retention management in Olympia, Greece.
- ◆ Integrated characterization, requalification and monitoring of Mediterranean freshwater systems: the case of the Odelouca River, Portugal.
- ◆ Water retention capacity of agricultural soils in Pinios River Basin in Central Greece.
- ◆ Implementation and evaluation of the hydrological impact of green cover crops in olive orchards: a review of different experiences in Spain.
- ◆ Wetland systems for Combined Sewer Overflow on-site treatment in Italy and elsewhere in the MED.
- ◆ SUDS in Limassol, Cyprus.
- ◆ Órbigo river restoration (Spain) – finalist of the European River Prize 2013.










Source. ATLANTIS-SUDS



NYC Green Infrastructure Plan 2012

The *NYC Green Infrastructure Plan*, which changes the way the City manages rain-related pollution, is a major part of this effort. The joint economic and environmental analysis contained within the plan has shown that the cost of new green infrastructure and more efficient water management systems would save billions of dollars over more traditional fixes. By using green infrastructure technology to keep stormwater out of our sewers, we can reduce sewer overflows and promote the sustainability policies that will make New York greener and greater – and save taxpayers money, too.



Thank you for attention!

