

**PUBLICATION**

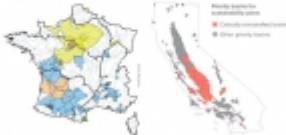
- Article
- Agriculture
- EU
- Land Use
- Sustainability
- Water

# Groundwater and Agriculture: A Comparison of Managing Scarcity and Droughts in France and California

**Groundwater and agriculture: a comparison of managing scarcity and droughts in France and California**  
POINT DE VUE 2023 11 04 06  
 By Annelis Ivaldi

**Overview of French and California agricultural groundwater management**

France and California face a common challenge of managing overdraft in intensively exploited aquifers. As of 2018, large areas of France and California have overexploited groundwater (see maps below). Both regions have passed landmark groundwater legislation, the Loi sur l'Eau et les Milieux Aquatiques (LEMA) of 2007 in France and the Groundwater Sustainable Management Act (SGMA) of 2015 in California. The LEMA and SGMA both aim to reduce long-term imbalances between extraction and recharge in priority aquifers. They also both rely on multi-level governance where local stakeholders are given primary responsibilities to define and reach sustainable yield, but state action is possible if local managers do not implement adequate plans to reach sustainability.



**Priority basins in France (left):** in yellow are priority groundwater basins, in blue are priority surface water basins. In orange are both priority surface and groundwater basins and California (right): Source: DRGAL-SRREIF - [drouot, 2018](#); PANC, 2018

France and California have very different physical realities and histories of managing water resources (see table below). With a predominantly Mediterranean climate, California has built a colossal water infrastructure, with 33 billion m<sup>3</sup> of surface water storage capacity and large water transfer operations from water surplus regions to deficit western regions. Few large water transfer schemes exist in France.

Earlier on, California established a permitting regime for surface water use in 1914, but it was extensively regulated groundwater extraction. The SGMA introduced for the first

[1]

Reaching sustainability in groundwater management will require ambitious allocations policies, smarter

Groundwater is a strategic resource for agricultural production across the world, accounting for 33% of total water abstraction worldwide and half of the irrigation water used to grow the world's food. It plays a crucial for water and food security and the economic development of rural areas in many regions of the world. Yet, groundwater resources are being over-exploited at an alarming rate, threatening the sustainability of rural economies. Future resilience will be dependent on the ability of farming communities to adapt to a changing water resource base while fostering a competitive, innovative and dynamic rural economy.

The [European Union H2020 funded RURECO project](#) [2] focuses on strategies and institutional arrangements for sustainable groundwater management. Research involves international comparison of groundwater allocation policies in agriculture, including France, Spain and California. The project also aims to develop participatory foresight methods to strengthen the resilience of agricultural communities dependent on groundwater extraction for irrigation purposes.

As part of RURECO, Associate Fellow Dr. Josselin Rouillard, currently in secondment at the [French Geological Survey \(Brgm\)](#)

[3], recently took part in a one-month research exchange at the [Center for Watershed Sciences at the University of Davis, California](#) [4]. Seminars with academic staff at UC Davis and Stanford University were organised comparing European and Californian strategies for sustainable groundwater management. Workshops and meetings were organised with the State Water Resource Control Board and nine groundwater sustainable agencies across the state of California. These exchanges reinforce a long history of transatlantic exchange between Ecologic Institute and the United States.

Although France and California have very different physical realities and histories of managing groundwater, they both face significant challenges regarding the good quantitative status of their groundwater resources. Innovative approaches are being trialled in both regions, providing useful ground for international comparison and lesson drawing. A synthesis of key observations on European, French and Californian experiences made during the research visit is available in this [blog post](#) [5].

#### **Main Link**

Blog Post: Groundwater and Agriculture: A Comparison of Managing Scarcity and Droughts in France and California

---

#### **Citation**

Rouillard, Josselin 2019: Groundwater and agriculture: a comparison of managing scarcity and droughts in France and California. California WaterBlog, 24 March 2019, <https://californiawaterblog.com/2019/03/24/groundwater-and-agriculture-a-comparison-of-managing-scarcity-and-droughts-in-france-and-california/>.

#### **Language**

English

#### **Author(s)**

Dr. Josselin Rouillard

#### **Year**

2019

#### **Table of Contents**

1. Overview of French and Californian agricultural groundwater management
2. Between preventing deterioration and restoring: comparing legislative aims and levels of ambition
3. Accounting for ecosystem, society and economic needs in a variable and uncertain environment
4. Between a rock and a hard place: the difficult implementation of reallocation policies
5. The broader policy mix: designing an innovative combination of supply and demand actions
6. Some concluding remarks

## Keywords

groundwater, rural, economies, overexploitation, agriculture, Europe, France, California, blog

---

**Source URL (modified on 05/13/2019 - 16:32):** <https://www.ecologic.eu/16438>

## Links

[1] [https://www.ecologic.eu/sites/files/presentation/2019/groundwater\\_agriculture\\_0.jpg](https://www.ecologic.eu/sites/files/presentation/2019/groundwater_agriculture_0.jpg)

[2] <https://www.brgm.eu/project/rureco-institutions-groundwater-dependent-rural-economies>

[3] <https://www.brgm.eu/>

[4] <https://watershed.ucdavis.edu/>

[5] <https://californiawaterblog.com/2019/03/24/groundwater-and-agriculture-a-comparison-of-managing-scarcity-and-droughts-in-france-and-california/>