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GROUNDWATER MANAGEMENT UPSTREAM OF THE MARAIS POITEVIN WETLANDS



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Presentation Outlines

- 1. The Marais Poitevin Wetlands situation**
- 2. 50 years of development**
- 3. Decisions of the years 2000**
- 4. Results on the ground**
- 5. Progress milestones**
- 6. Next Steps**



The Marais Poitevin wetlands situation

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Two systems coexist :

- A **wonderful** wetland area
- A performant irrigated agricultural system



110 000 ha

2nd protected wetlands of France



The Agricultural system:

10% of jobs of the Vendée area



The Marais Poitevin Wetlands situation

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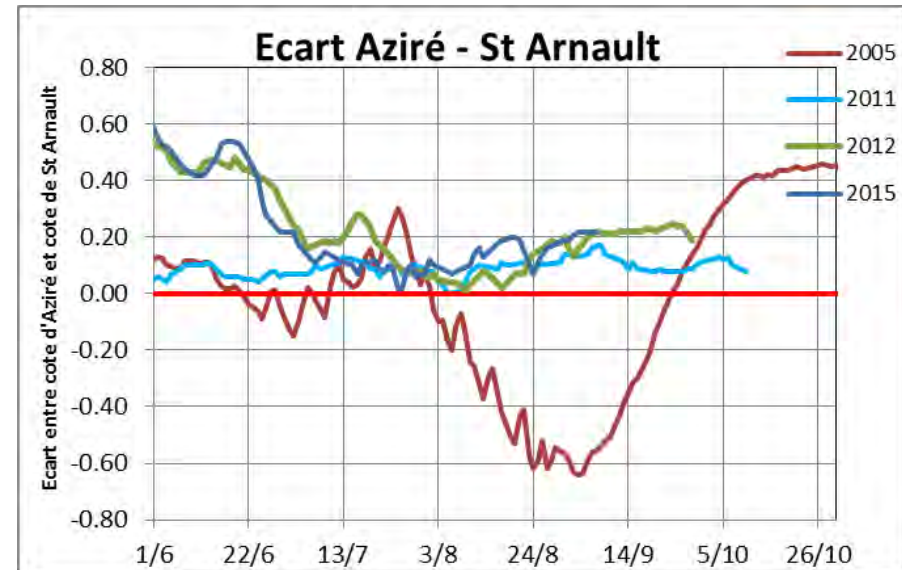
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Specific hydraulic and hydrogeologic dynamics:

- The wetlands are fed by groundwater upstream (in the North)
- **Risk of flow inversion**



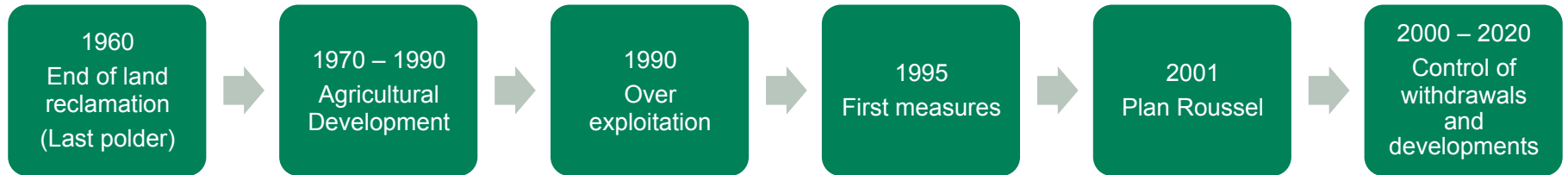
Drawdown of water sources in summer



Example of GW level minimal level

- 1996 : -0,9 m NGF
- Today : objective of 3,0 m NGF

50 years of Development



Land reclamation of the wetlands area in 1960



Infrastructure development in 2010



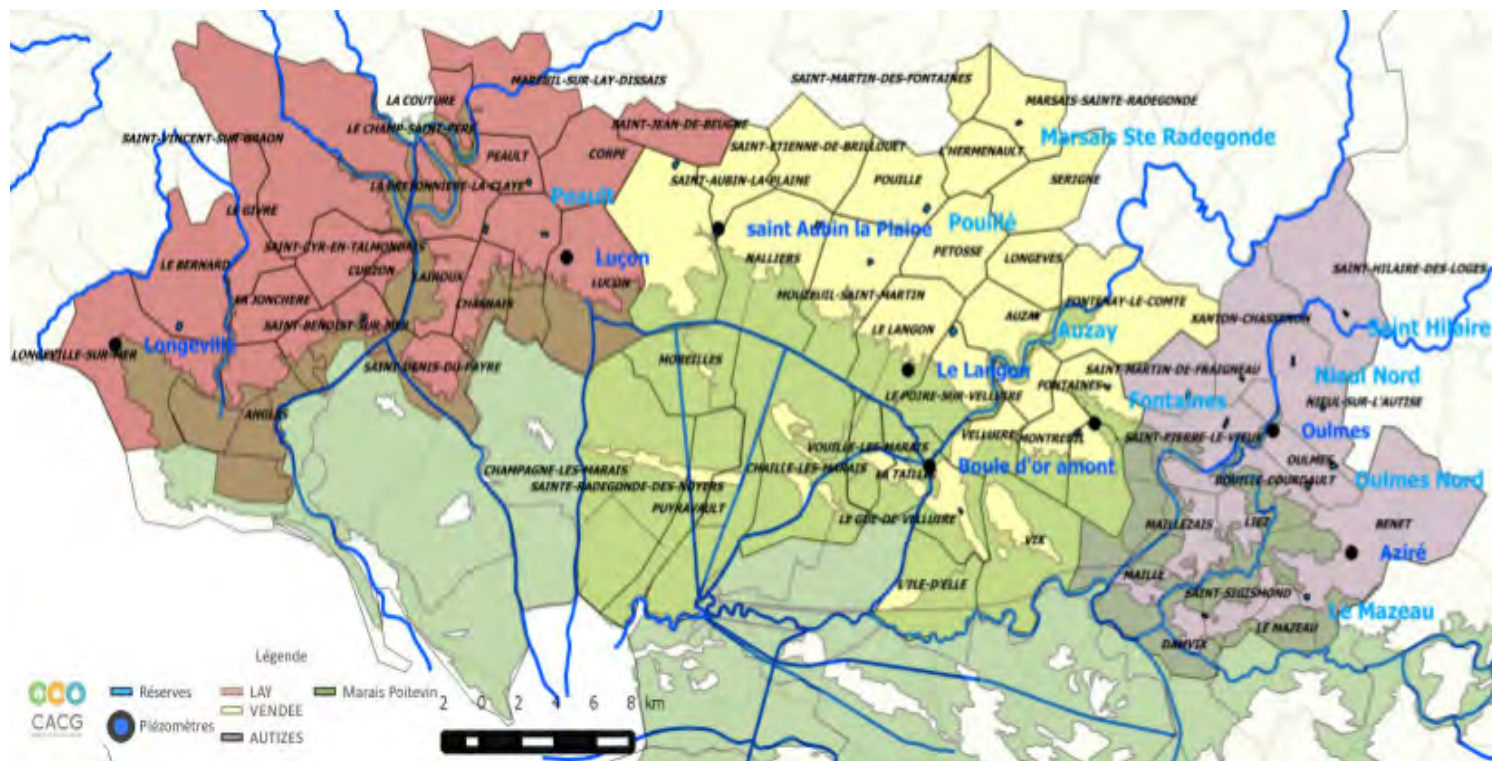
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Decisions of the years 2000

Collective management

- 25 reservoirs – 11 Mm³ – 50% of water savings (14 constructed in 2015)
- **Cost / Risk sharing among withdrawers**





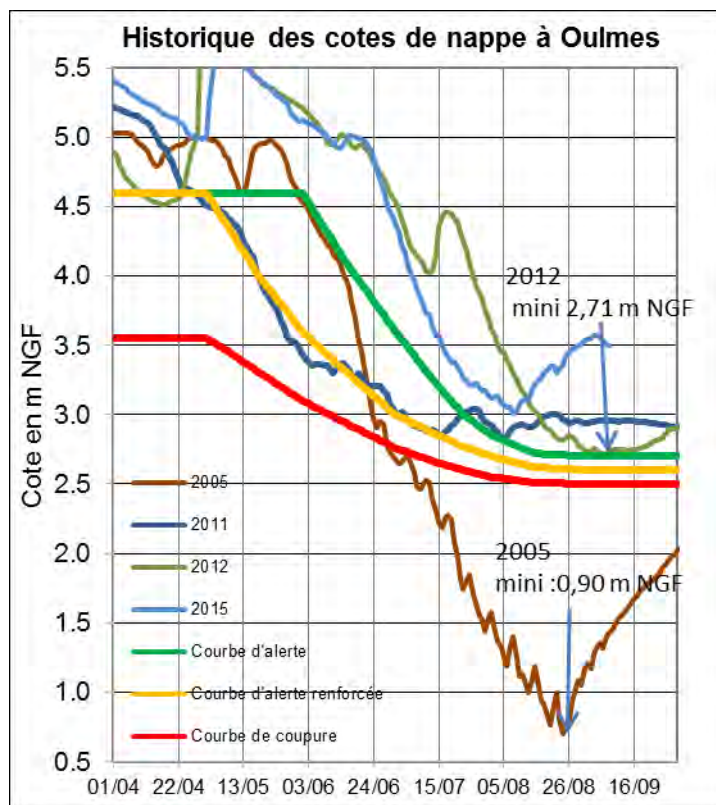
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Field Results

Positive Environmental impacts:

- **Optimized water management of the wetlands thanks to higher groundwater levels**



Comparison
2005 – 2011 – 2012 -2015

- 2005 : Flow inversion
- 2011 : Early water crisis managed
- 2012 : minimum levels guaranteed
- 2015 : management of rapid drawdown through better operation



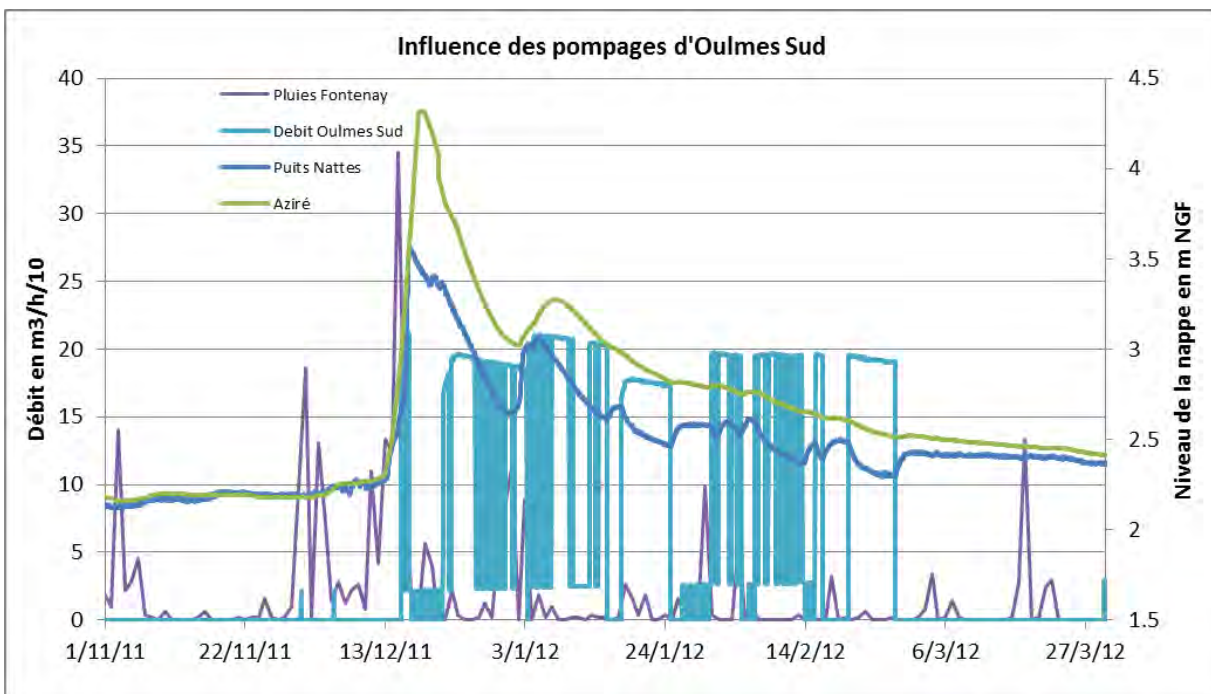
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Field Results

Positive Environmental impacts :

- **Limited Impact** in winter



- **Local effects:**
Nattes (300 m)
Around 10 cm on the GW water level
- **General effects:**
Aziré (2 km)
Below the cm



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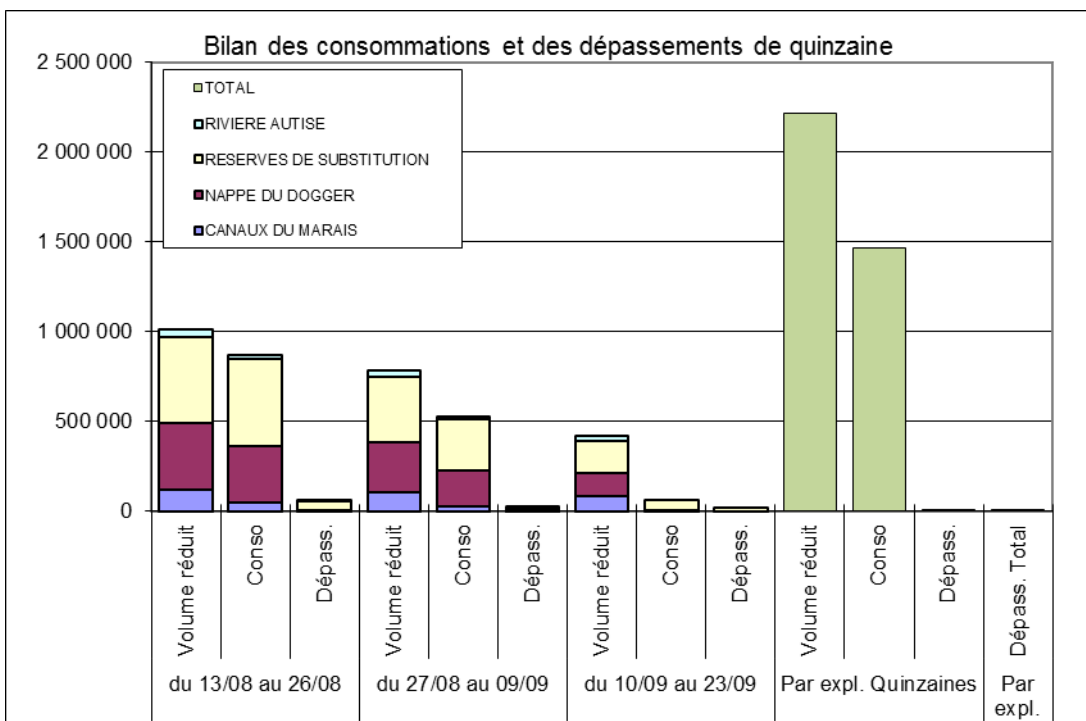
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Field Results

A sound management to contain the impacts:

- **Restrictions according to the needs to ensure equity between users**
- **Continuous monitoring to manage withdrawals**

... Altogether with a continuous concertation



Consumptions, 2012

- A volume allocated for 15 days
- Strong penalties to avoid overuses
- Overbooking on the reservoirs during restriction periods (+10% of substitution)



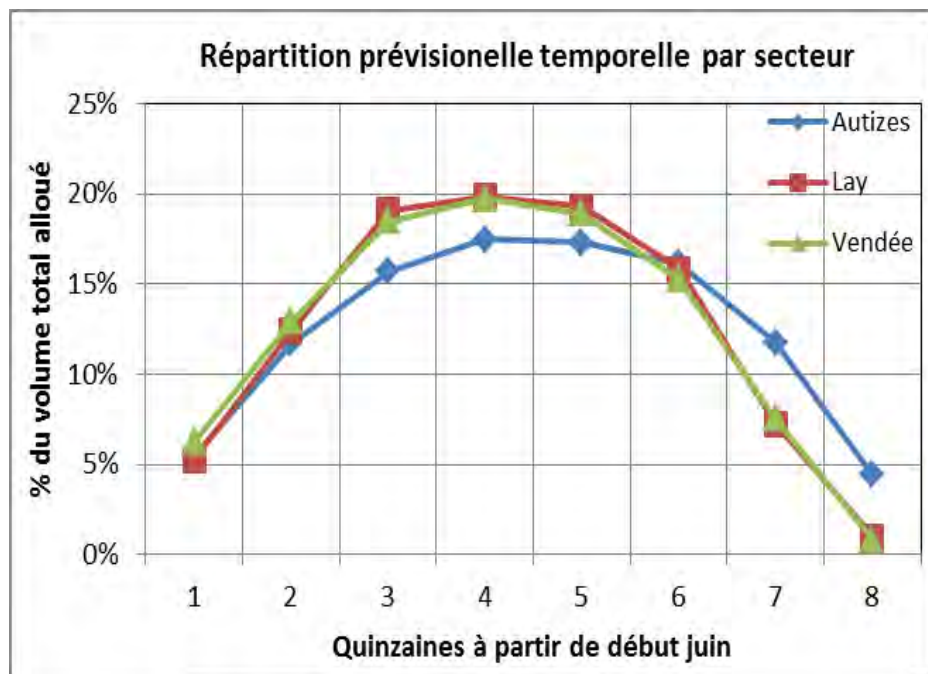
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Field Results

Socio Economic Impacts:

- **Trust** is shared among users (15 days management)
- Crop diversity turning to **cash crops**



Water consumption repartition for different sectors

Autizes vs Vendée / Lay

- Autizes : Trust and shift in the cropping patterns (late sowing crops)
- Vendée / Lay : the learning process is starting



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Progress foreseen

Progress can be made through:

- Better use of the reservoirs during restriction periods (increase of the mixed withdrawals)
- Oversee the current administrative limits
- Consider withdrawals out of the administrative boundaries
- Enhance the surface water management



The full cancellation of the surface withdrawals can be foreseen in the mid term



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Next Steps

Policy decisions to be confirmed:

- How to use public finance?
- Which economic development for the territory?

Opportunities:

- Smart connected objects
- Predictive modelling
- Community development plans

Ambitions to be shared:

- Institutional and legal framework
- Transparency / sharing process
- Use of new technologies

Ultrasonic connected water meter

