



MAWAC-ENA WORKSHOP

PARIS

November
2025



Presentation of the Institution

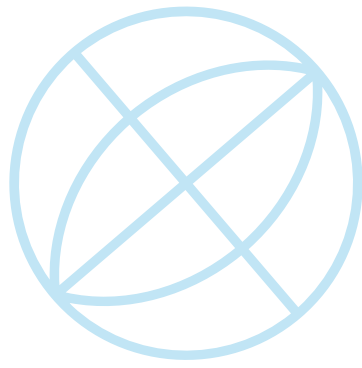
Seine Grands Lacs

Seine Great Lakes



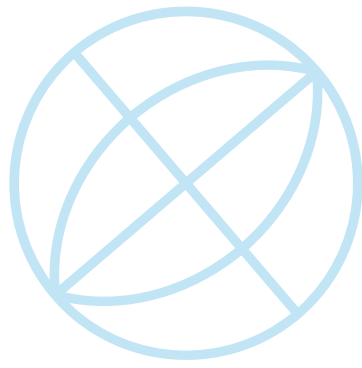
Baptiste BLANCHARD
General Manager





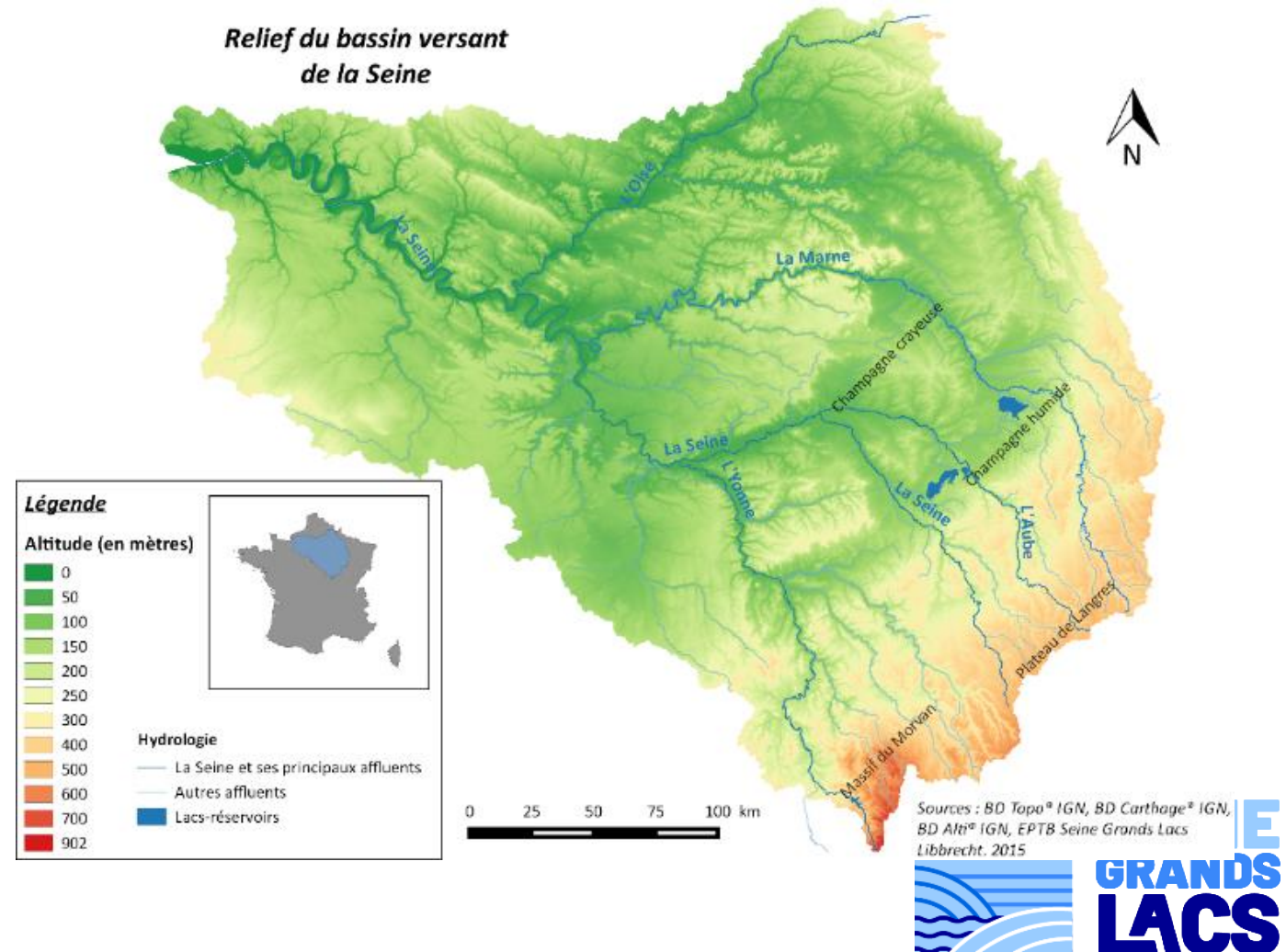
- **1/ The Seine Grands Lacs Institution**
- **2/ Missions fulfilled by the Reservoir Lakes**
- **3/ The Seine Bassée Project**
- **4/ Flood Expansion Zones**
- **5/ Flood Prevention Action Programs**

The Seine Great Lakes institution



The Seine River and the Paris Metropolitan Area

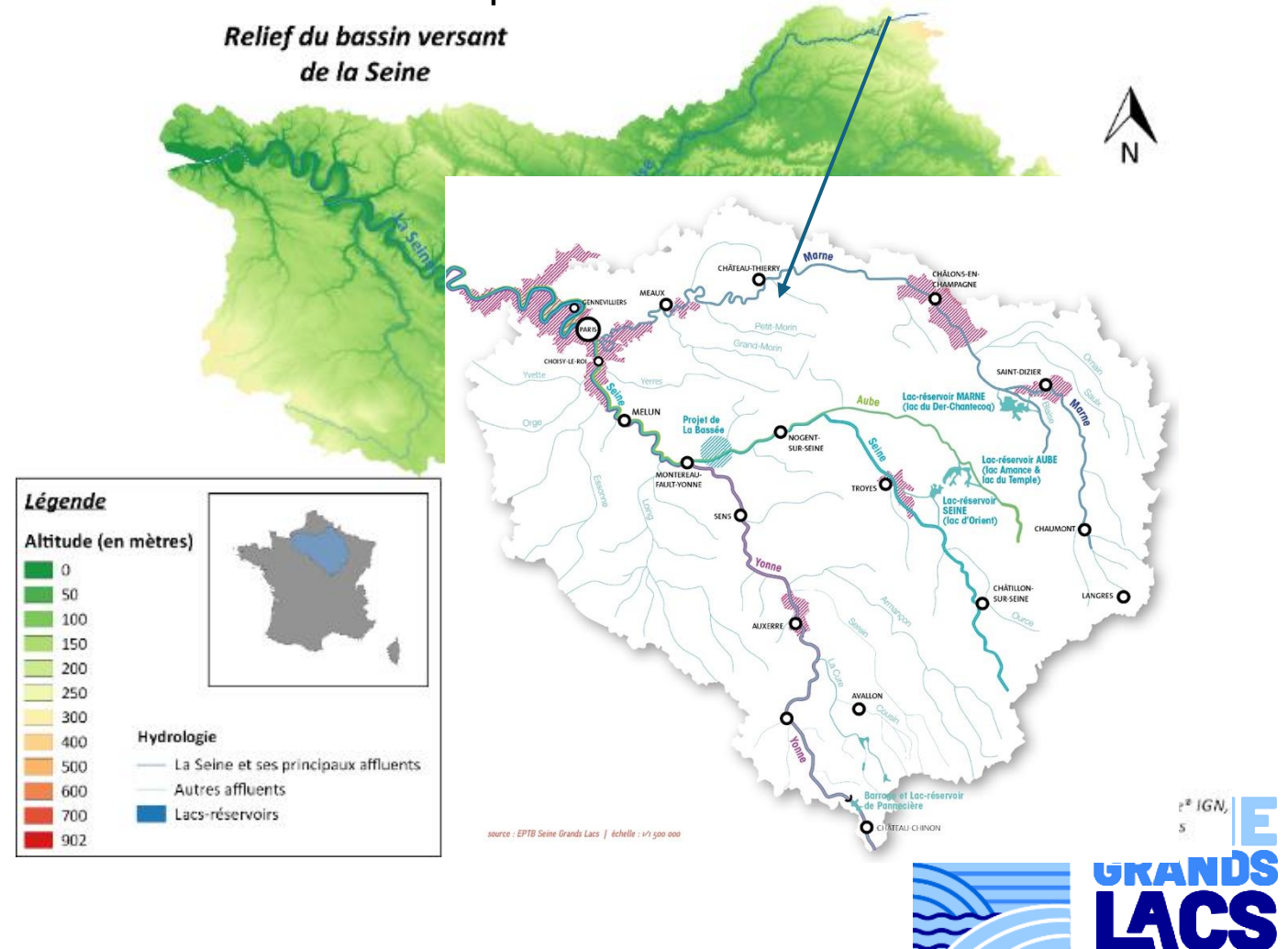
- Length of the Seine : 776 km
- Basin area : 73 700 km²
- Highest altitude : 471 m
- The Seine River in Paris
- Basin area amont : 44 200 km²
- Altitude : 26 m
- Low-water flow : 25 m³/s
- Average flow : about 250 m³/s
- 100-year flood flow : 2 500 m³/s



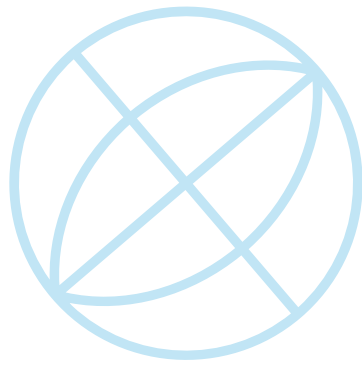
The Seine River and the Paris Metropolitan Area

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Perimeter of Seine Grands Lacs = upstream of the basin of the Seine



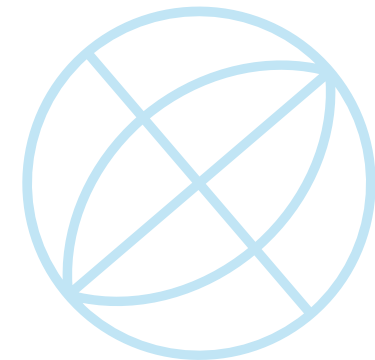
Seine Great Lakes agency

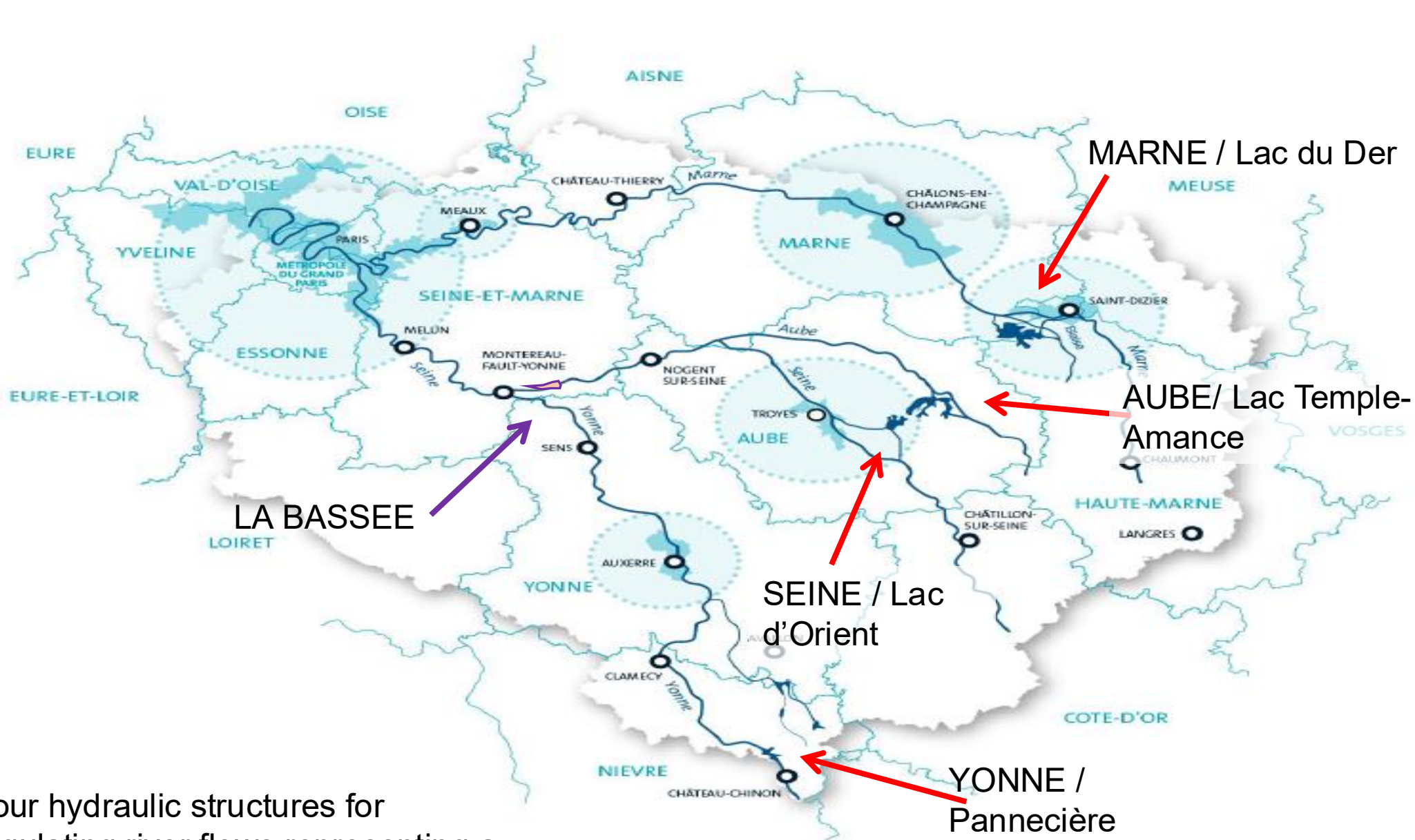


- A mixed union that brings together 10 local authorities:
 - the Greater Paris Metropolis, Paris,
 - three departmental councils: Hauts-de-Seine, Seine-Saint-Denis, Val-de-Marne,
 - three agglomeration communities: Troyes, Saint-Dizier, Meaux,
 - and two regions: Île-de-France and Grand Est.
- President = Patrick OLLIER, President of the Greater Paris Metropolis
- Manages 4 reservoir lakes built after the major floods of 1910, 1924, 1955, and the severe droughts of 1921, 1949, and 1976.
- Pursues a dual historic mission in its territory:
 - - to reduce the impact of floods from the Seine and its main tributaries
 - - to support low flows to ensure regular water supply for the Paris region
 - and to maintain the ecological balance of its rivers
- Since 2007, has developed new missions to help reduce the vulnerability of the Paris metropolitan area to floods and, more recently, to severe low flows.
- Staff: 145 employees
- Annual budget : €25M for operations, €15M for investments (excluding the new Seine Bassée project)



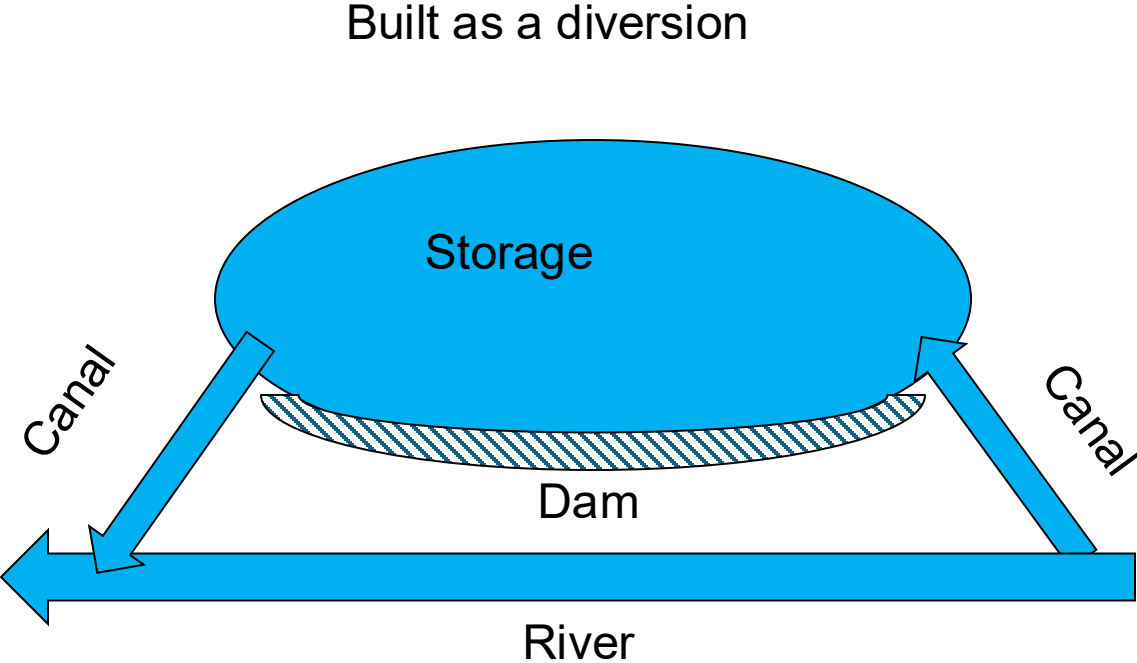
2/ The Reservoir Lakes



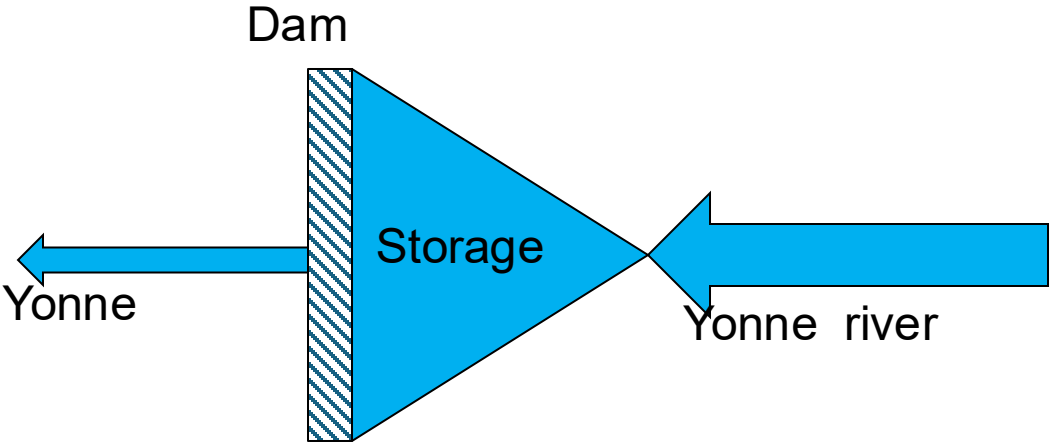


Four hydraulic structures for regulating river flows representing a storage capacity of 800 million m³ spread over 10,000 ha.

4 reservoir dams

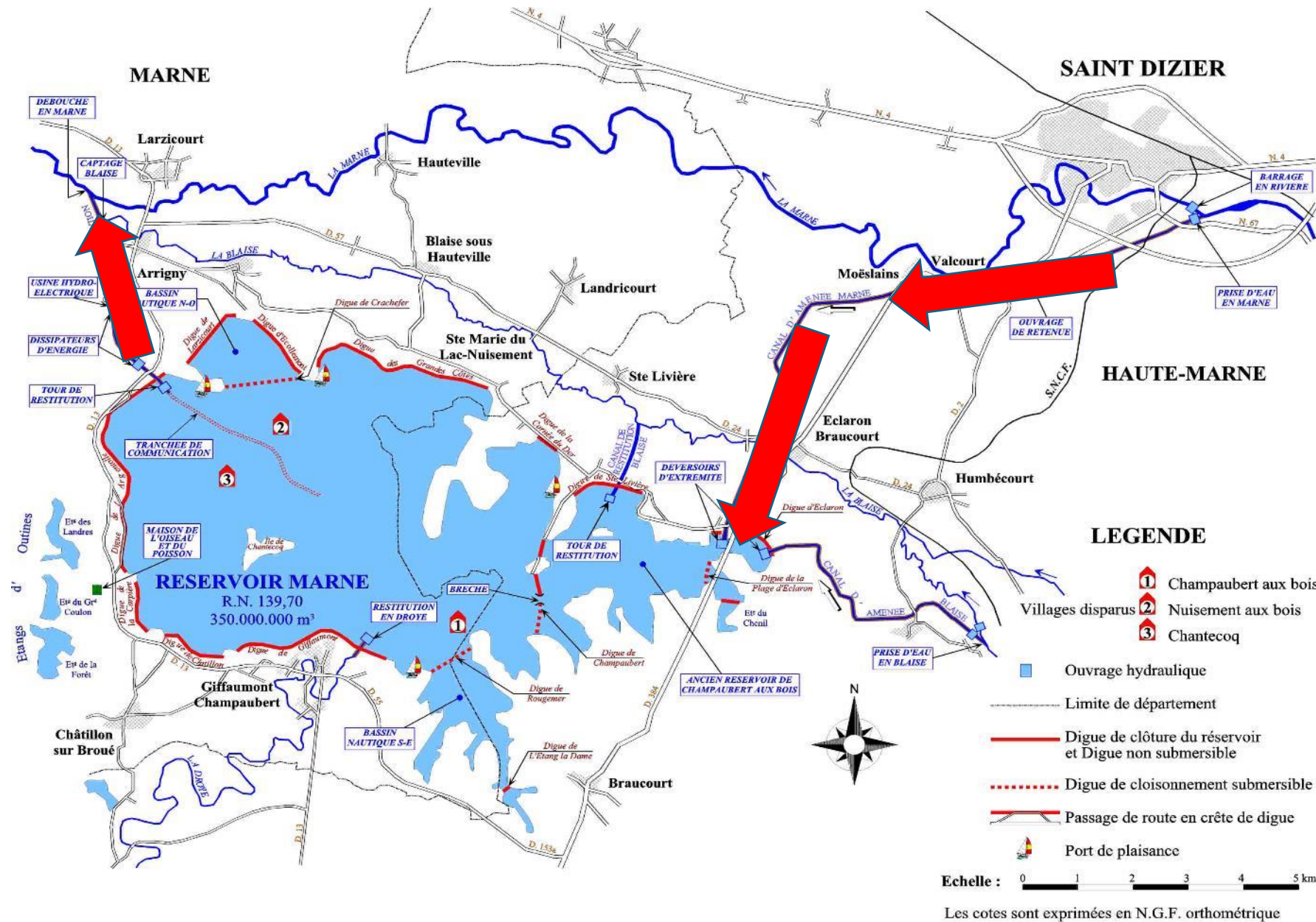


Dam across the river



Lac de
PANNECIERE

Lac-Réservoir MARNE

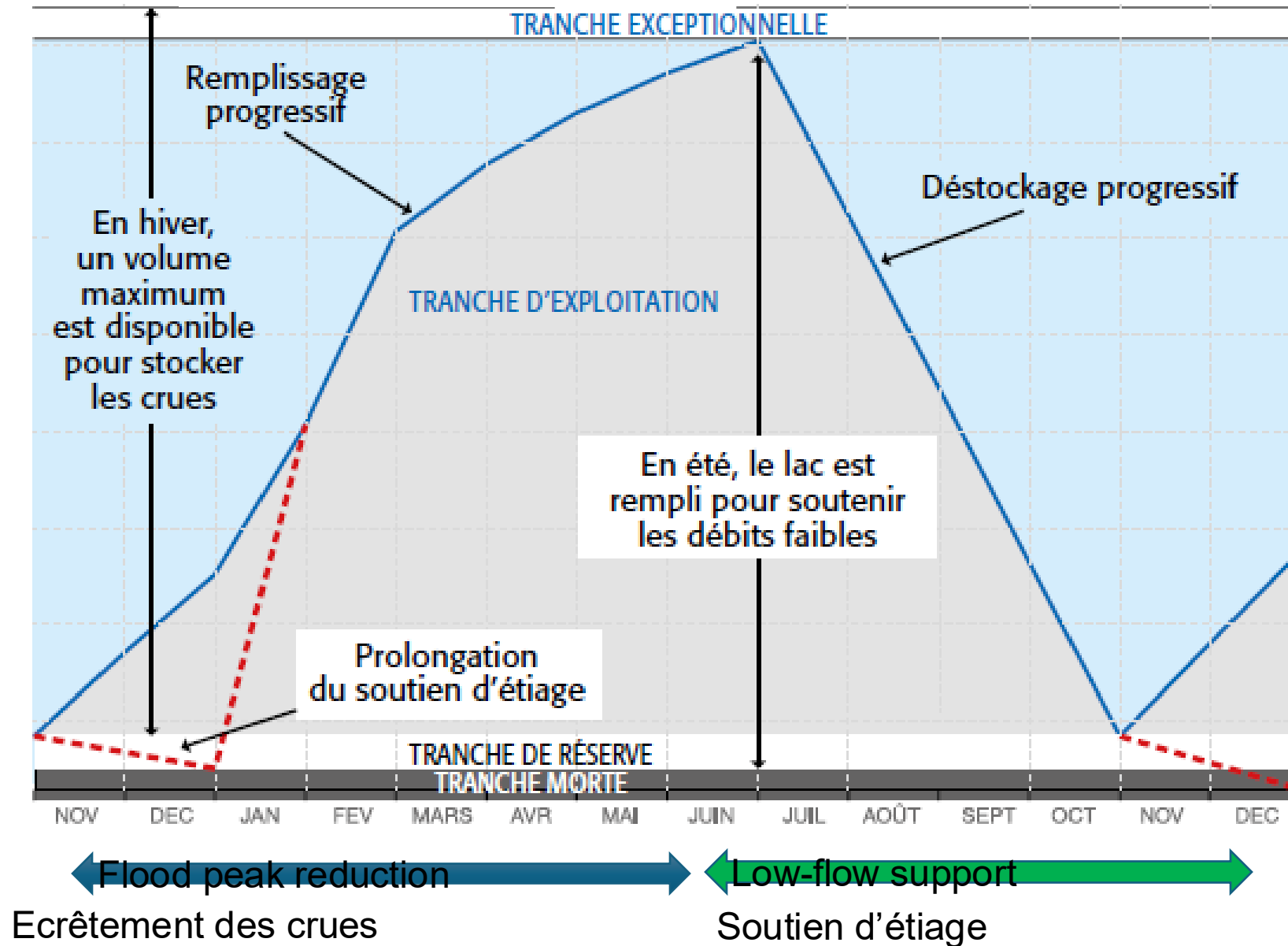
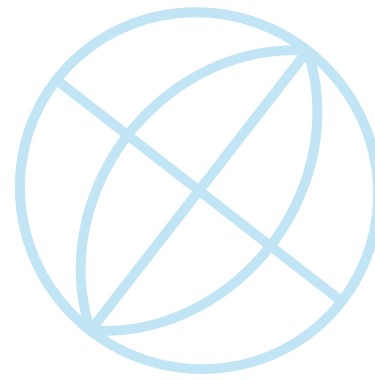


Built in 1974
Maximum capacity: 355 millions m³
Surface area: 4,800 ha
20 km of dikes (perimeter embankments)
Maximum dam height: 20 m
20 km of canals
Maximum diverted flow rate: 408 m³/s

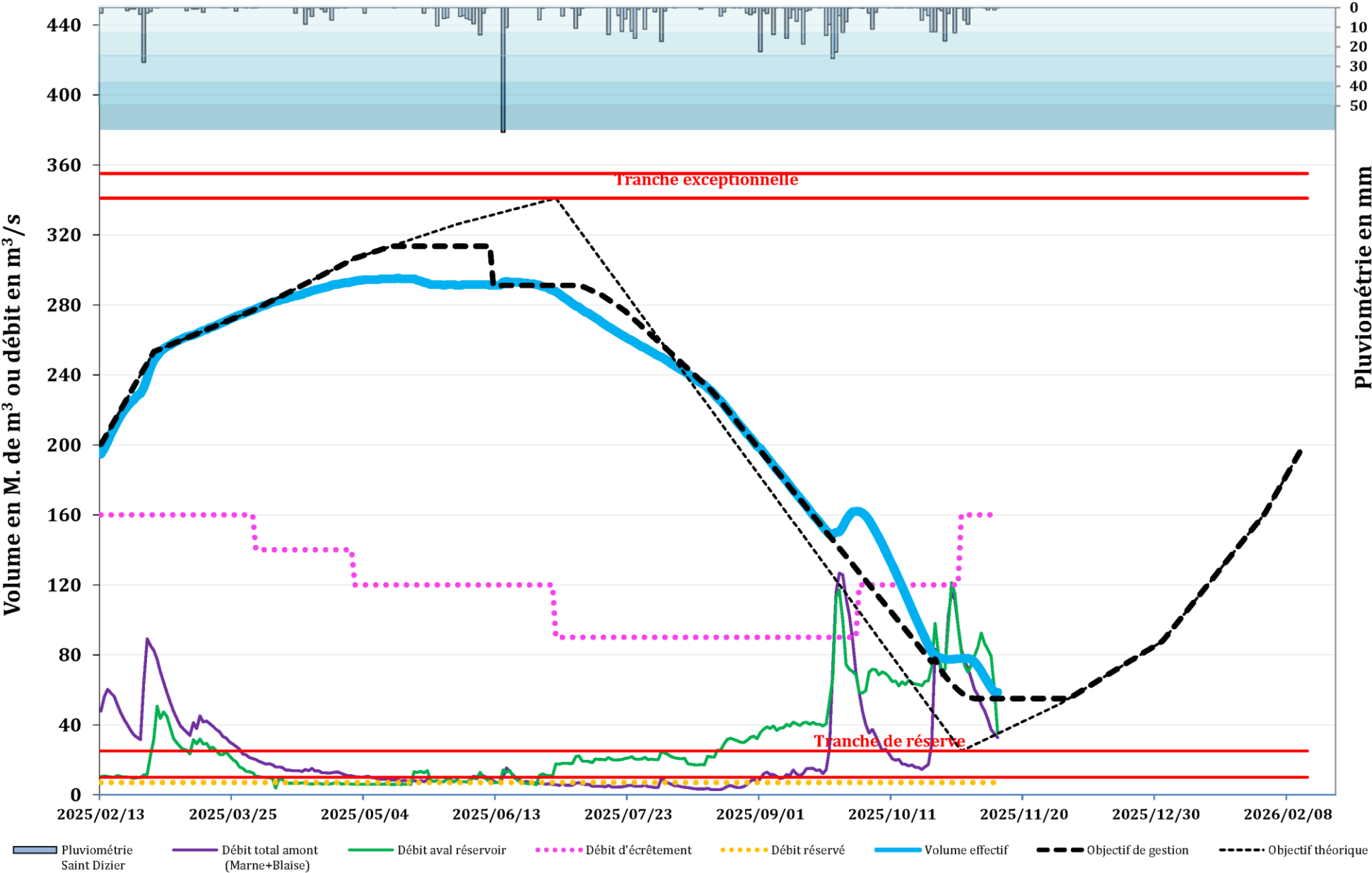


MARNE Reservoir Lake

Reservoir Lake Management Curve

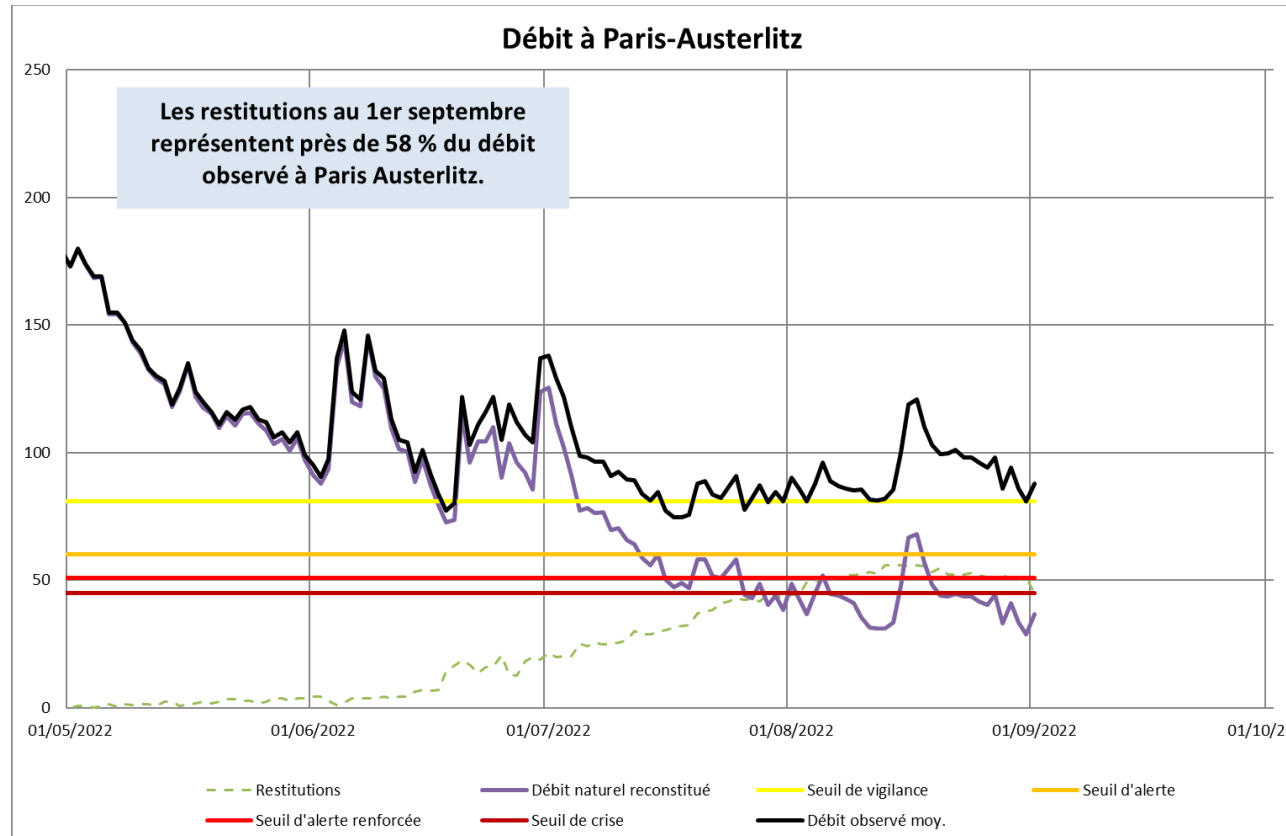


Management Curve of the Marne lake – 2025/11/12





Low-flow support of rivers

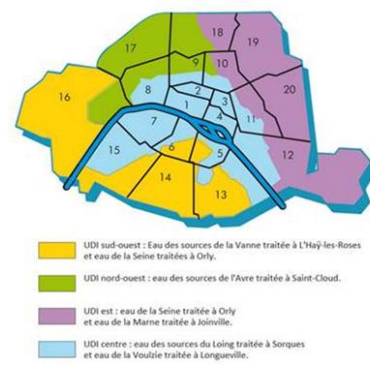


In 2022, releases from the reservoir lakes represented:

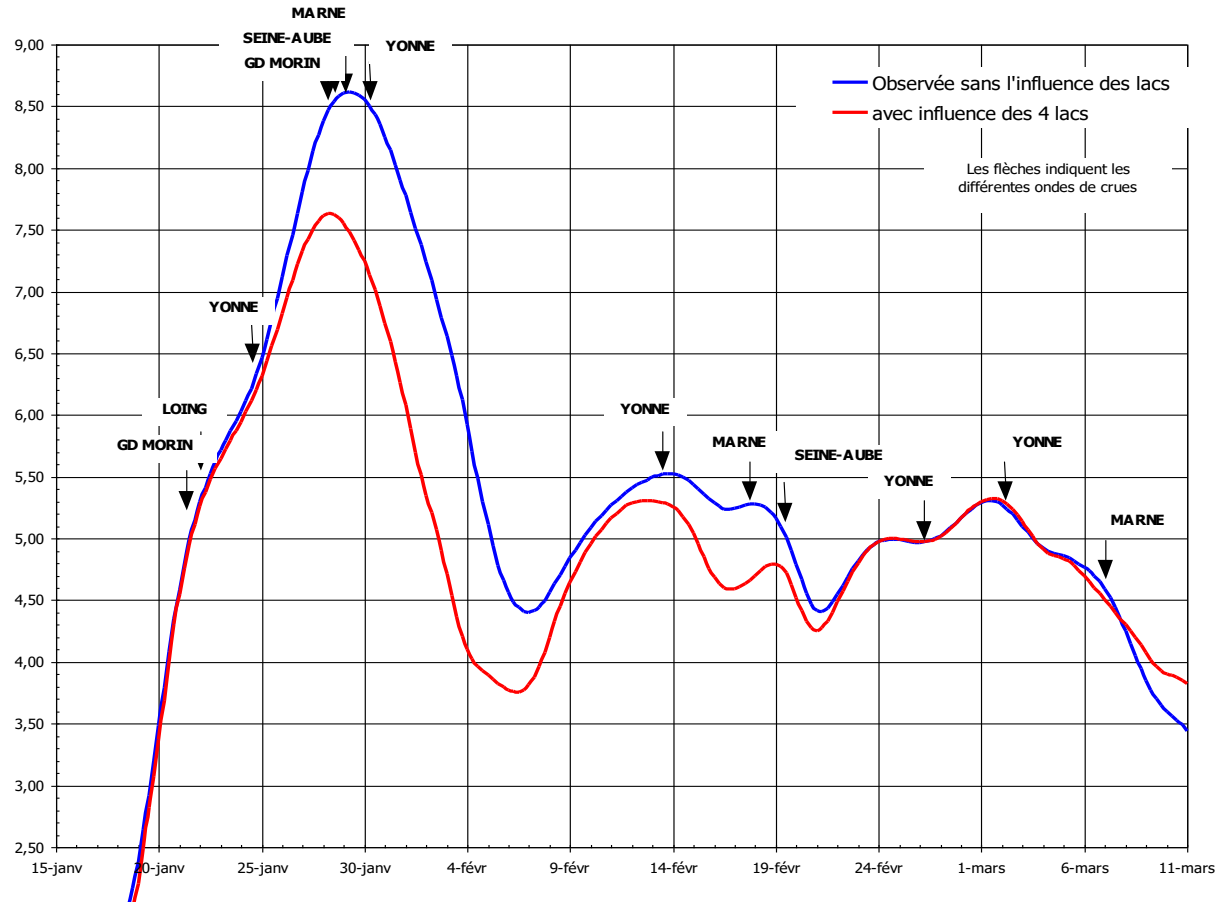
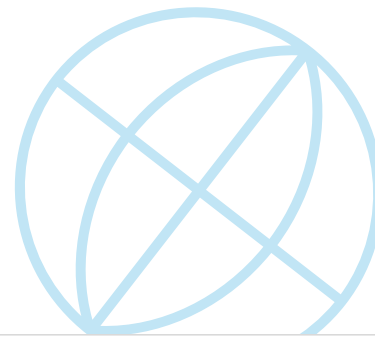
Up to 70% of the Seine's flow observed at Pont-sur-Seine, and the natural flow would have reached crisis level for over 4 months.

Vulnerabilities → Nogent-sur-Seine nuclear plant, public water supply...

Up to 70% of the Marne's flow observed at Gournay.

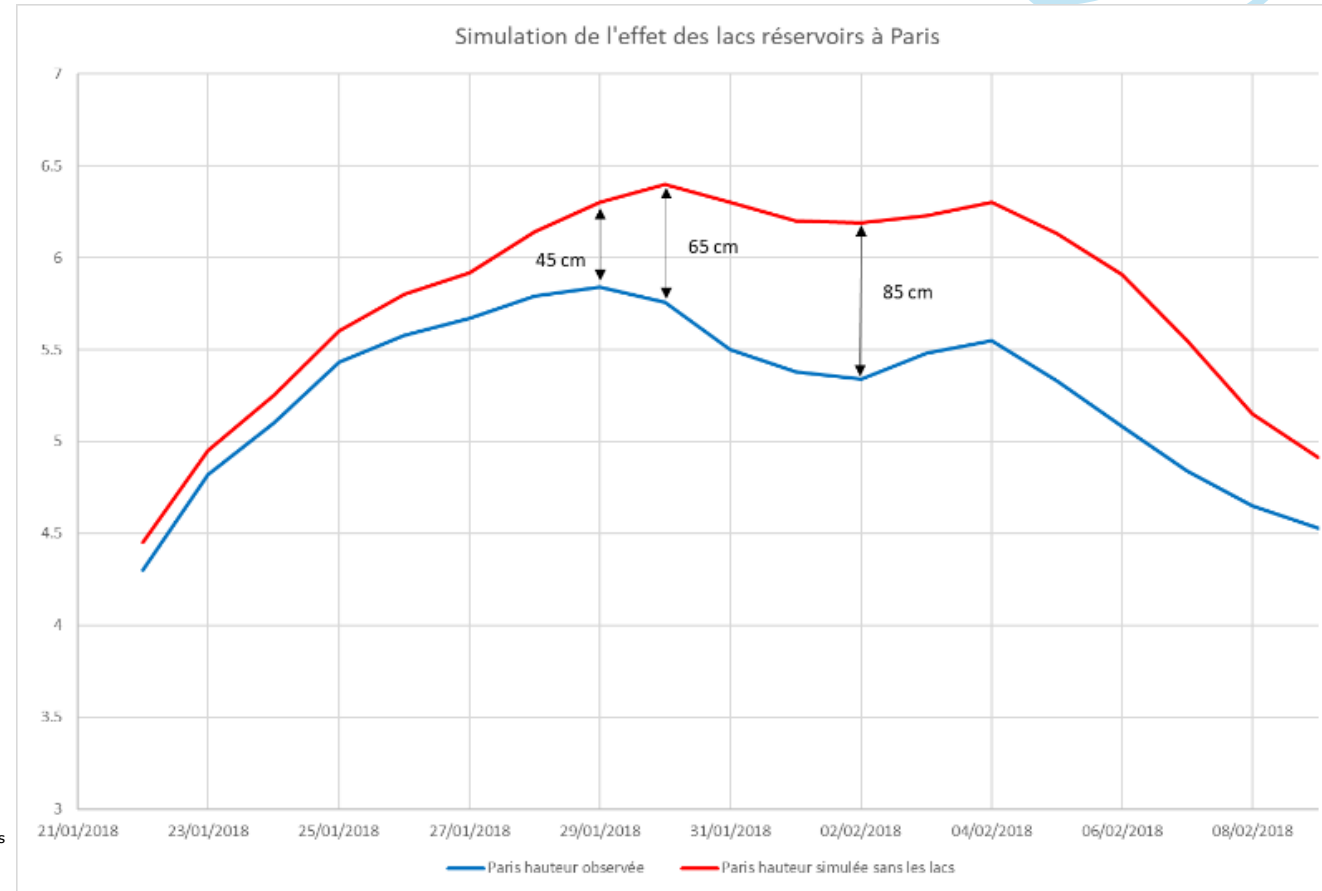


Flood regulation – effectiveness of lakes against a 1910-type flood or 2018 flood ("Paris-Austerlitz")

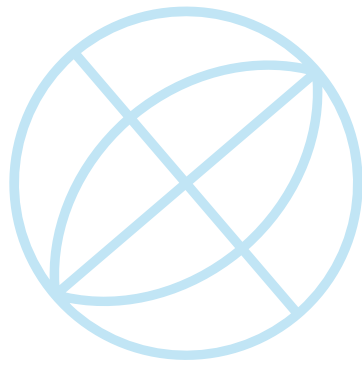


1910 - type

2018 : €150 million in damages, but
€90 million avoided thanks to the lakes



3/ The Pilot Flood Storage Basin Project in La Bassée



3. The Pilot Flood Storage Basin in La Bassée

Global program:

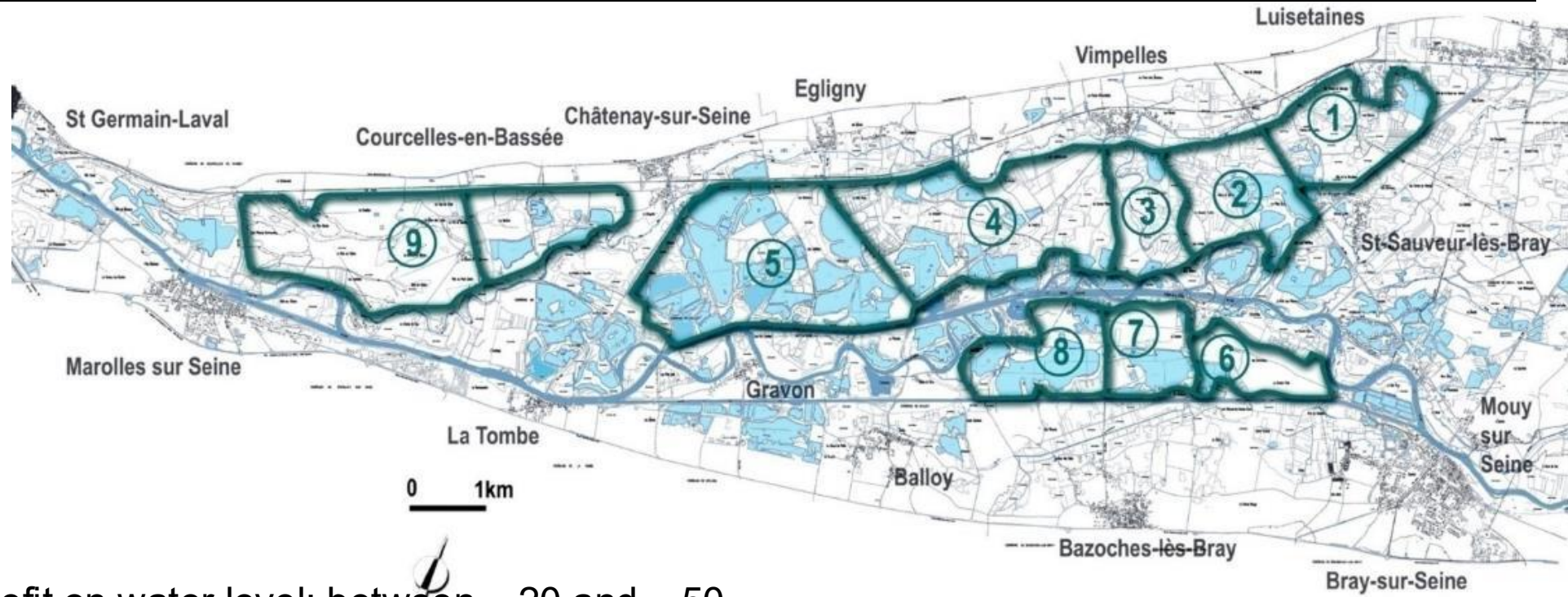
9 compartments

55 millions m³

230 m³/s pumping capacity

Gravity drainage

Goal : **reduce the flow of the Seine river at the time of the passage of the flood wave of the Yonne river, which confluent 10 km downstream**



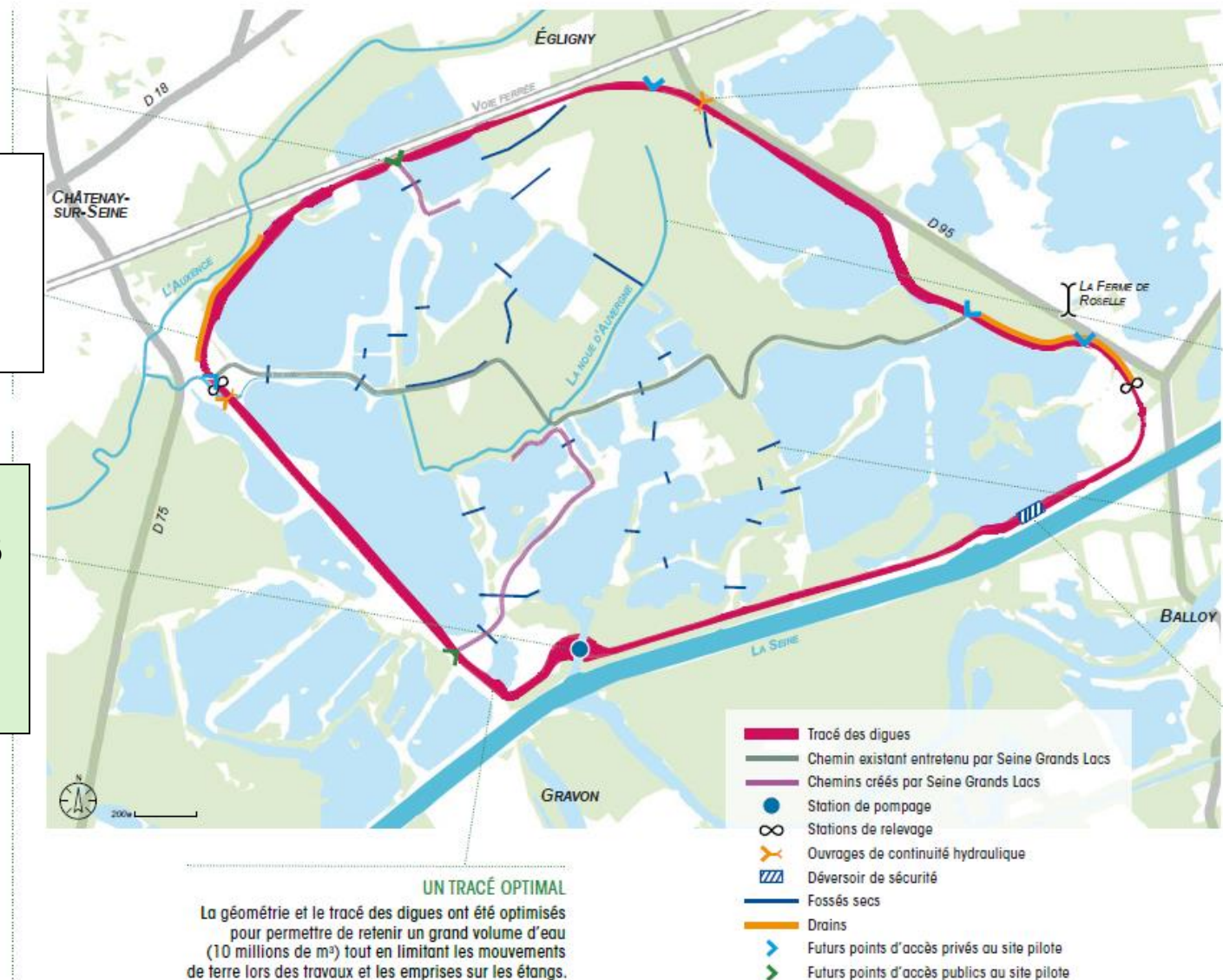
Estimated benefit on water level: between – 20 and – 50 cm depending on location and flooding

« Bassée » Pilot flood storage basin project

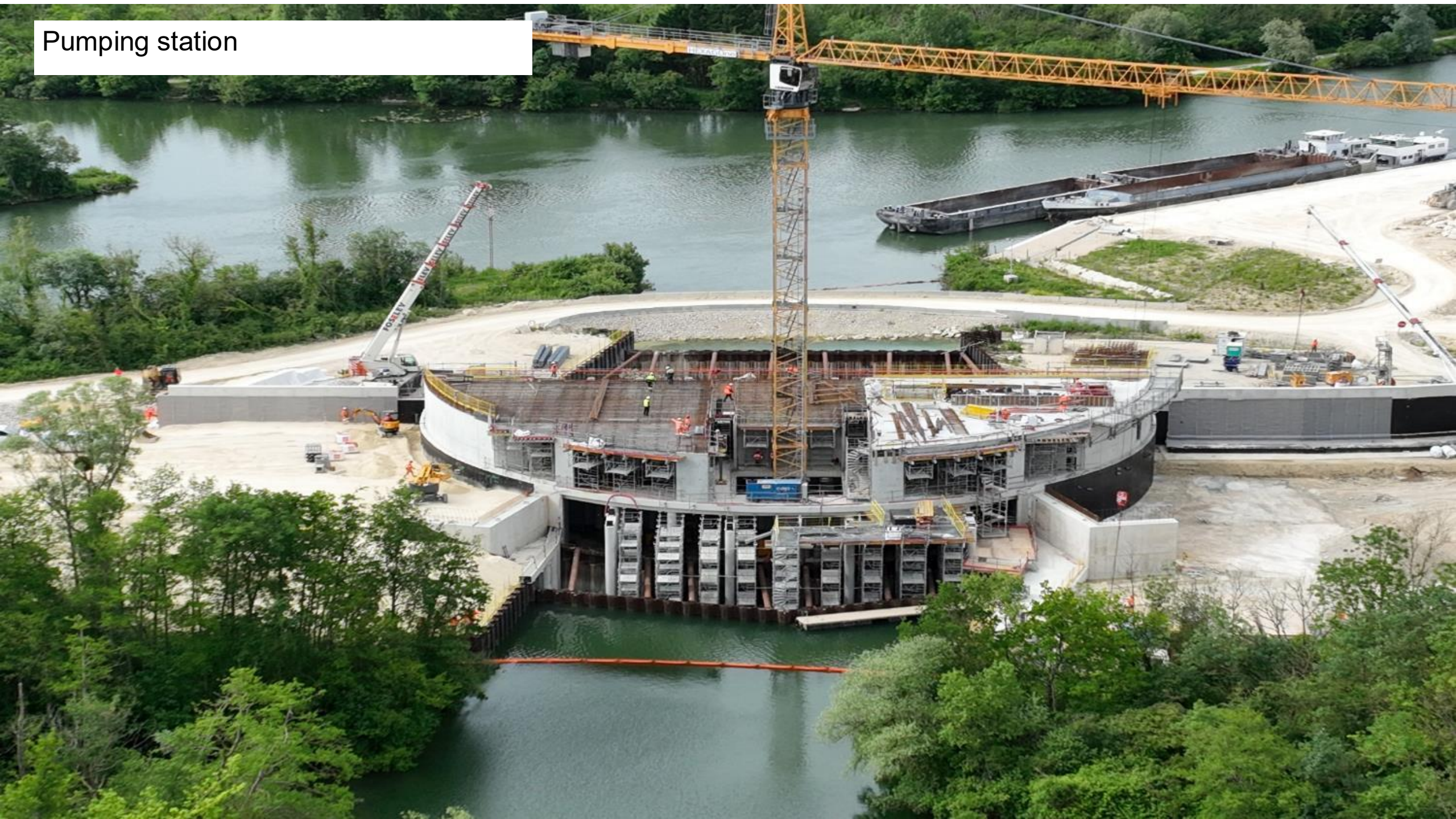


10 Millions m³
42 m³/s pumping
capacity

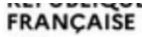
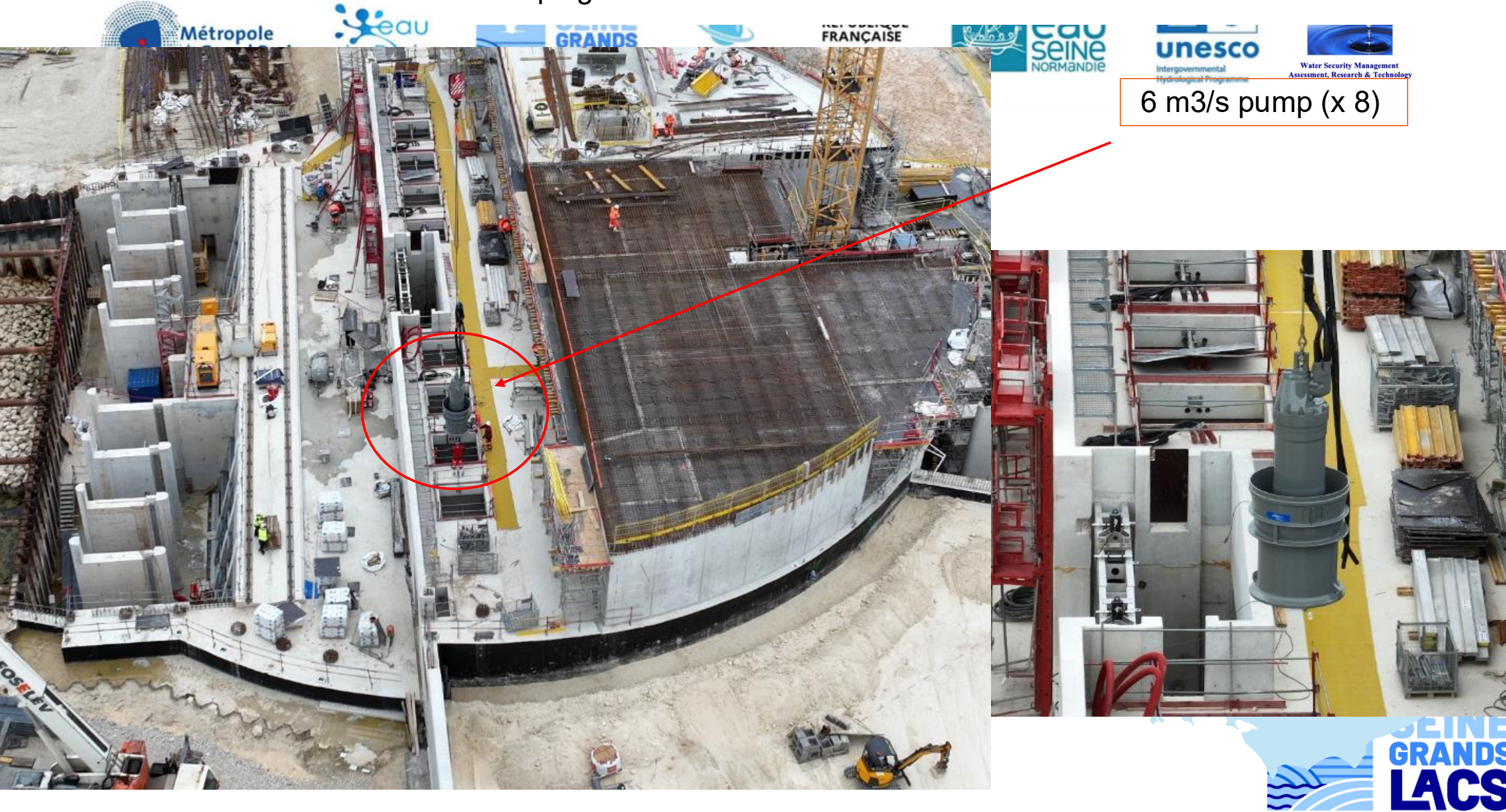
Estimated benefit on
water level: between – 3
and – 15 cm depending
on location and flooding
Cost = 150 M€



Pumping station



Pumping station



Water Security Management
Assessment, Research & Technology

6 m³/s pump (x 8)





Water Security Management
Assessment, Research & Technology

Pumping station – august
2024

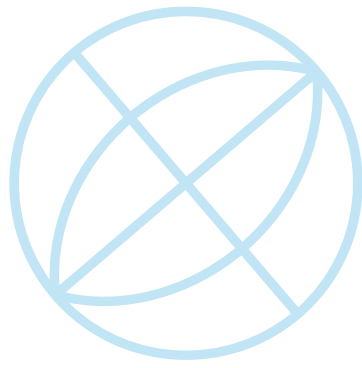


Test water filling starting January 13, 2025



01/16 – pumping
at 42 m³/s (Seine
flow at 210 m³/s)

4/ Flood expansion zones



Different types of flood expansion zones



ZEC À PRÉSERVER

fonctionnement non altéré



ZEC À RESTAURER OU OPTIMISER

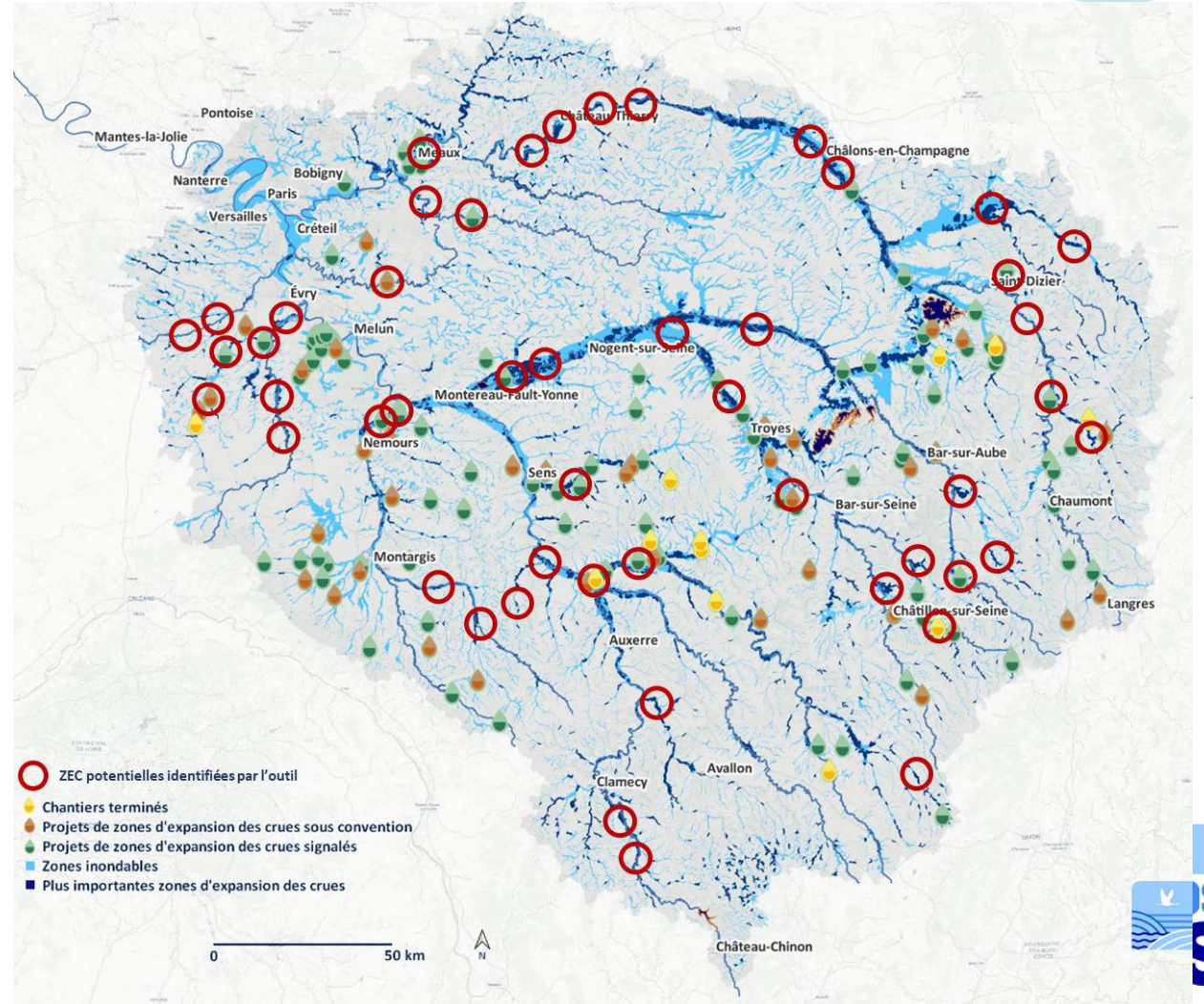
fonctionnement altéré



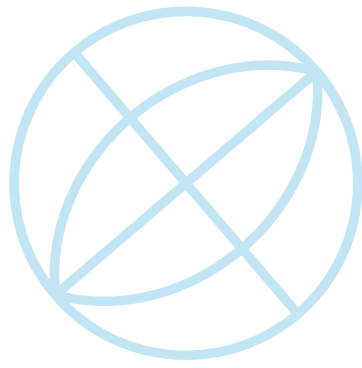
ZEC À AMÉNAGER



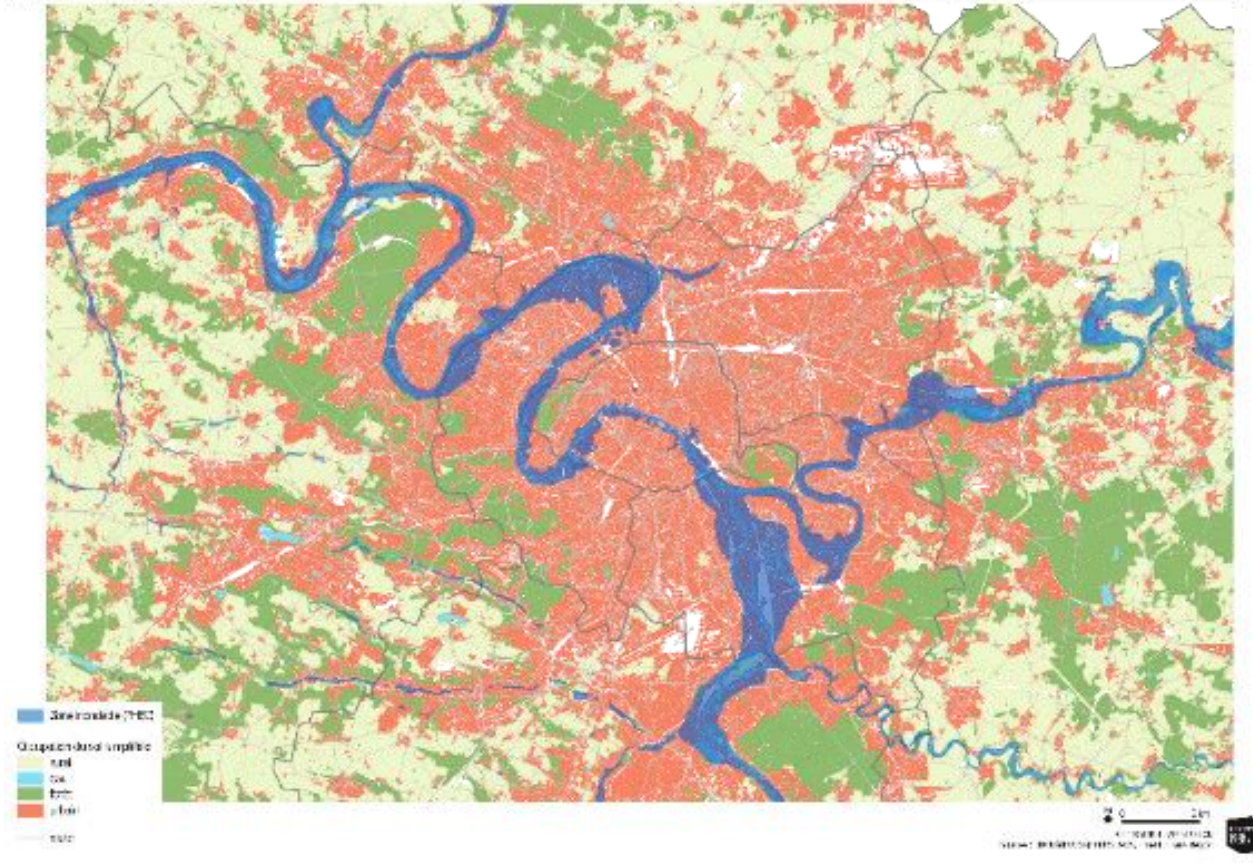
- 345 identified projects – technical and financial support for local authorities and farmers to help develop flood expansion zone initiatives



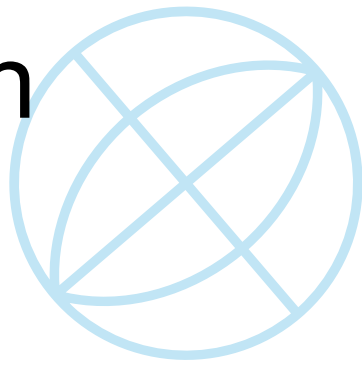
5/ Flood prevention action plans



L'Île-de-France en 2017

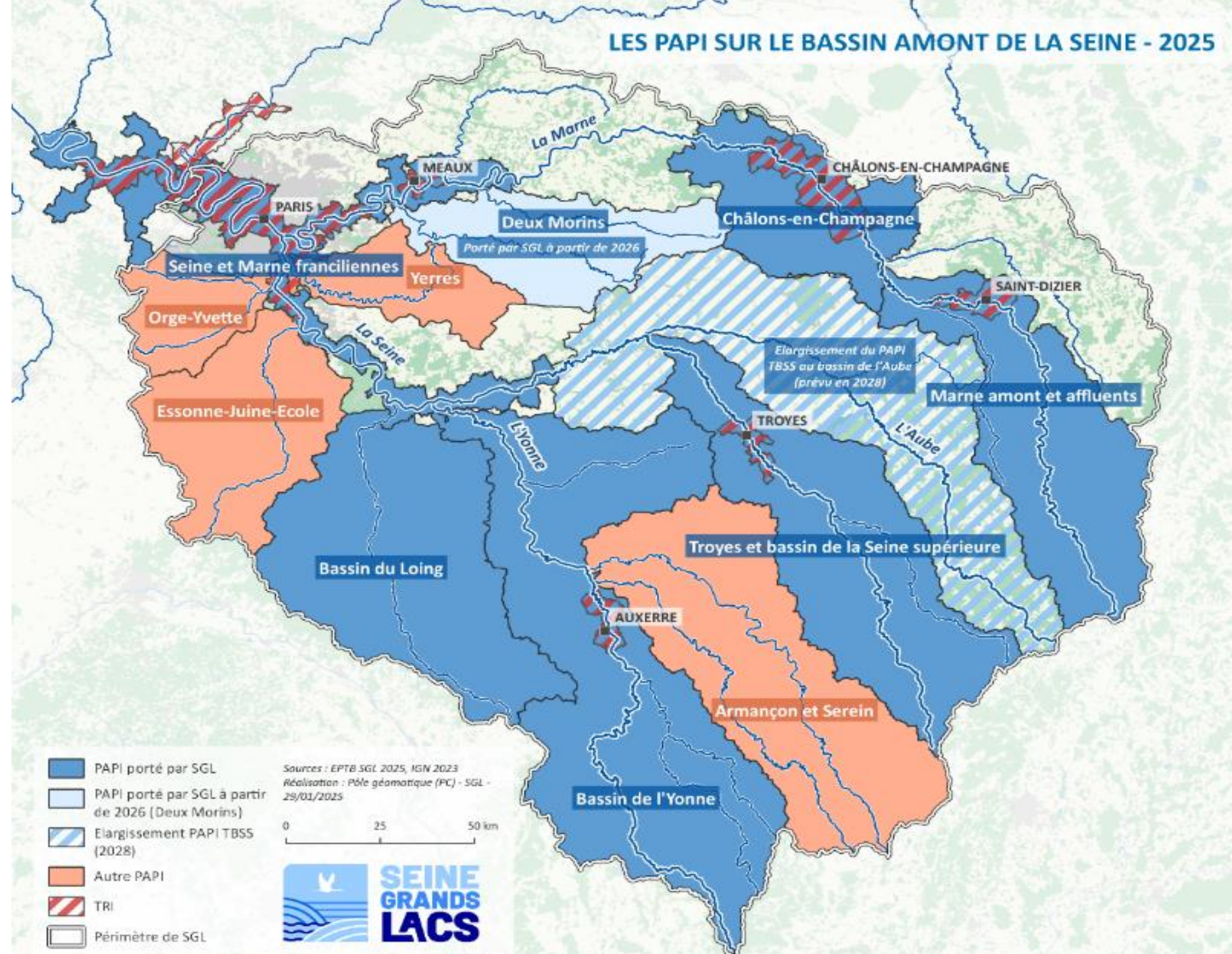


Seine River floods and their consequences in the Paris metropolitan area



- A major event with very significant consequences
- Impact on critical infrastructure: public transport / electricity / district heating / sanitation
- Direct and indirect impacts on nearly 5 million citizens (830,000 people in flood zones) and many businesses (70,000 people in flood zones)
- Long duration possibly exceeding a trimester
- Disruptions may start before flooding due to underground seepage and the alluvial groundwater table
- The current protection system is not sufficient to prevent overflow risks
- A considerable economic impact
- €3–30 billion in damages
- 10,000–400,000 job losses
- → Implementation of Flood Prevention Action Programs (PAPI)

- Seine Grands Lacs runs 7 programmes on the upstream Seine river basin





The 7 levers of flood prevention

Axis 1: Increase knowledge (of terrain and exposed assets) and raise awareness

Axis 2: Forecasting (precipitation, flood rise speed, discharge, etc.)

Axis 3: Anticipation, to manage the crisis more effectively (business continuity plan)

Axis 4: Include risk in urban planning and urban design

Axis 5: Reduce vulnerability of assets exposed to flooding

Axis 6: Build hydraulic infrastructure (ex. La Bassée project)

Axis 7: Manage hydraulic infrastructure (lakes, dikes, walls, bypasses...)

**A second program (PAPI 2023–2029) with 62 partners was approved in 2023
A new ambition: protection / restoration / creation of flood expansion zones
throughout the watershed – in partnership with farmers and local authorities**

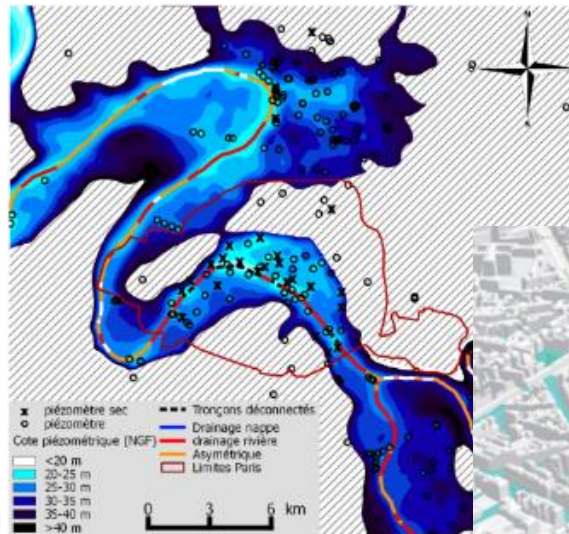


Examples of Actions Carried Out



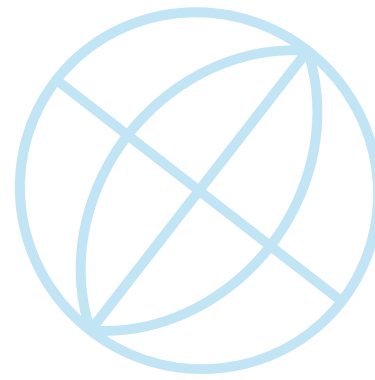
Axis 1 – Improving Knowledge

New modeling (surface and water tables) of flooding, indirect assets and 3D representations



Examples of Actions Carried Out

Axis 1 – Improving awareness



1 website Episeine.fr
games or quizzes
training sessions
e-learning modules
videos
web articles



Thank you for your attention

NAME : BLANCHARD Baptiste - baptiste.blanchard@seinegrandslacs.fr

INSTITUTION : SEINE GREAT LAKES

MEGACITY : PARIS

