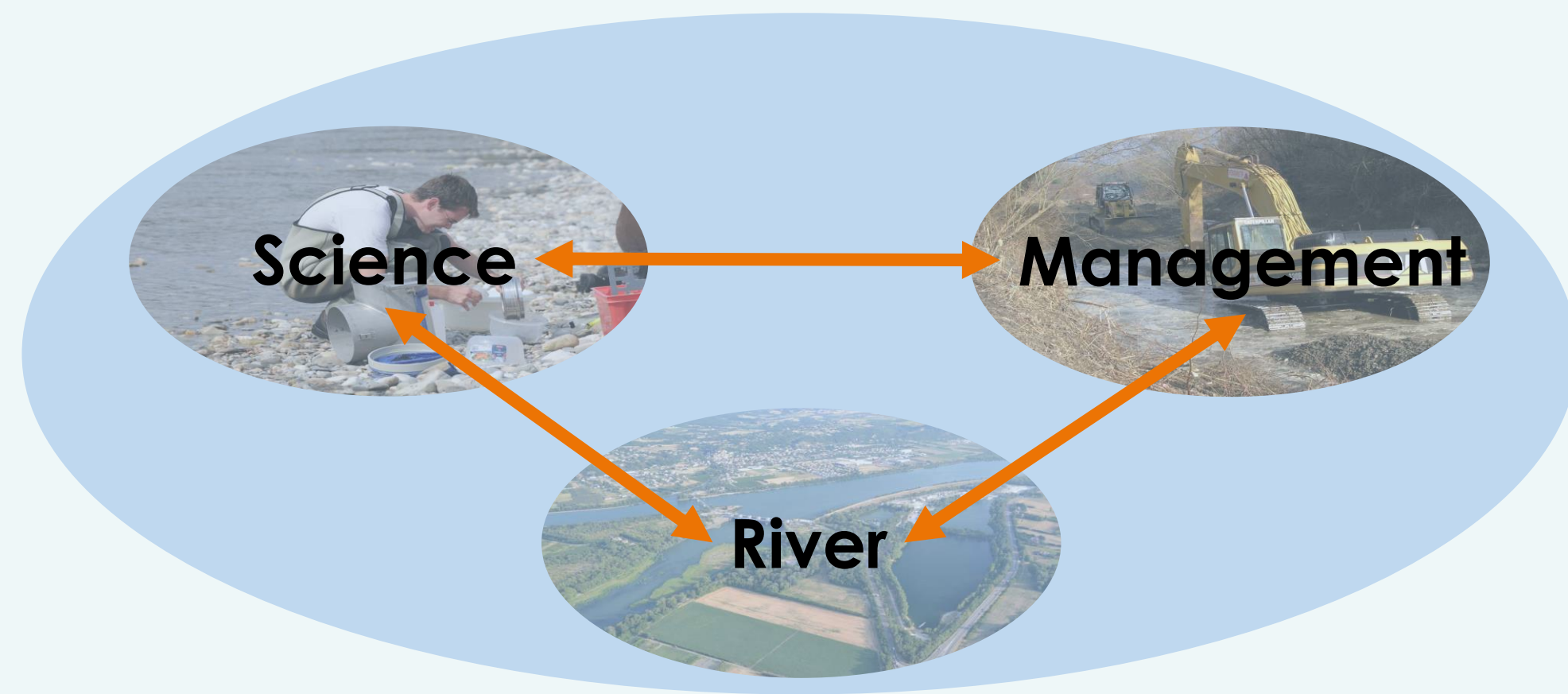


# Thinking Generalization About Ecological Restoration: Evolution of Scientific Practices in Rhône River Studies

Basile Cousin<sup>\*</sup>, Emeline Comby<sup>\*</sup>

## Why study scientific practices?

Knowledge production and transmission is embedded into social, economic and political dynamics<sup>1,2</sup>



## Materials and methods

23 semi-structured interviews to investigate scientific practices according to different variables

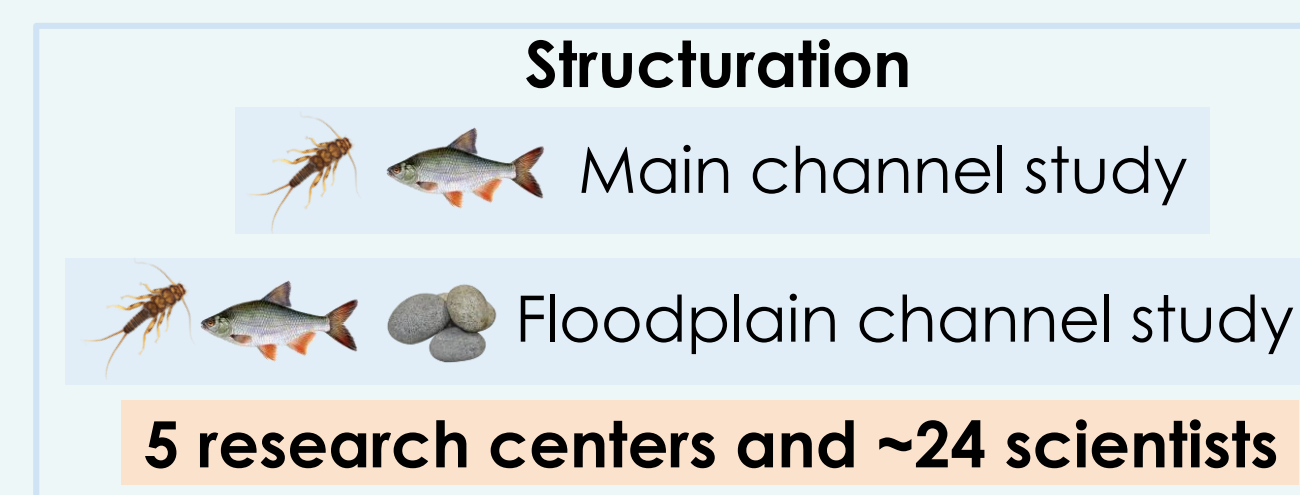
Variable	Modality	n
Status	Technician	2
	Research assistant	3
	Research associate	2
	Associate professor or researcher	10
	Full professor or research director	5
Research field	Ecology	17
	Molecular biology	1
	Geomorphology	2
	Ecotoxicology	2
Gender	Men	14
	Women	8
Seniority	RhôneEco 1.0	9
	RhôneEco 2.0	13

## A changing context in Rhône researches



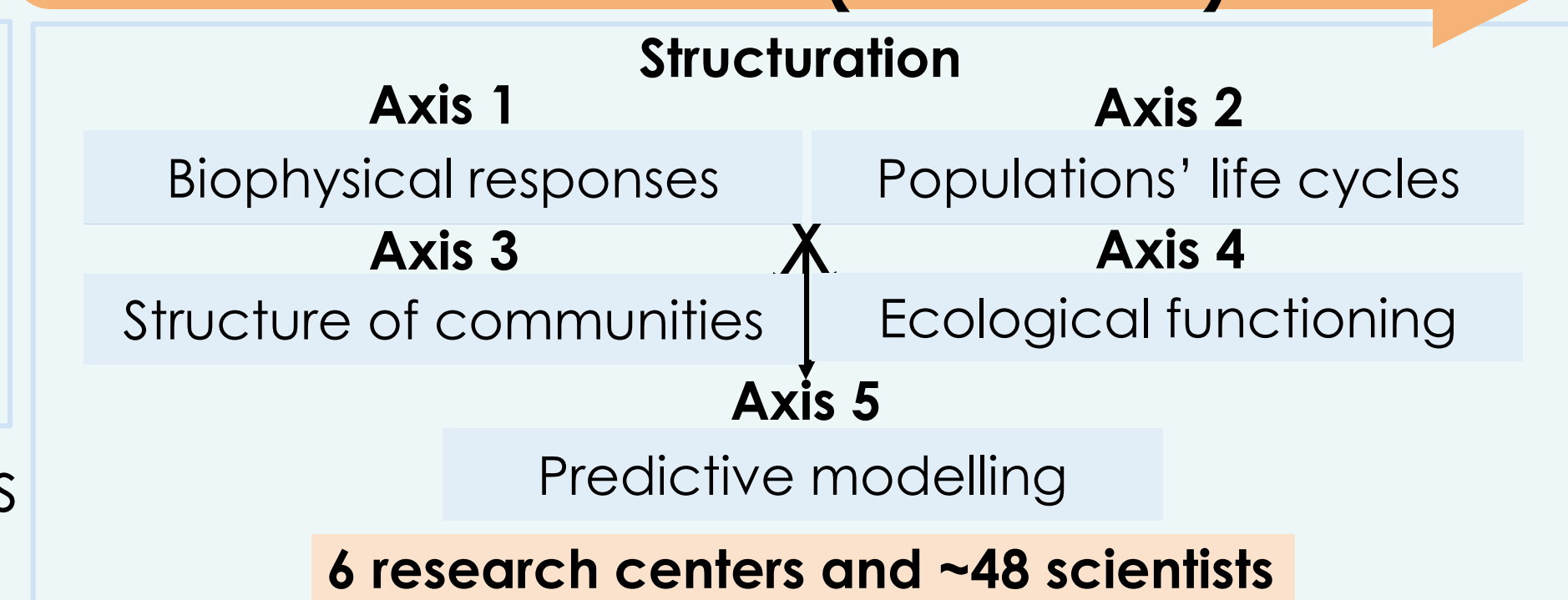
RhôneEco, the scientific program for the monitoring and assessment of the ecological restoration the Rhône, underwent a major overhaul in 2024

### RhôneEco 1.0 (1998-2024)



- Co-construction with managers
- Predictive approach
- Interdisciplinary for a holistic understanding

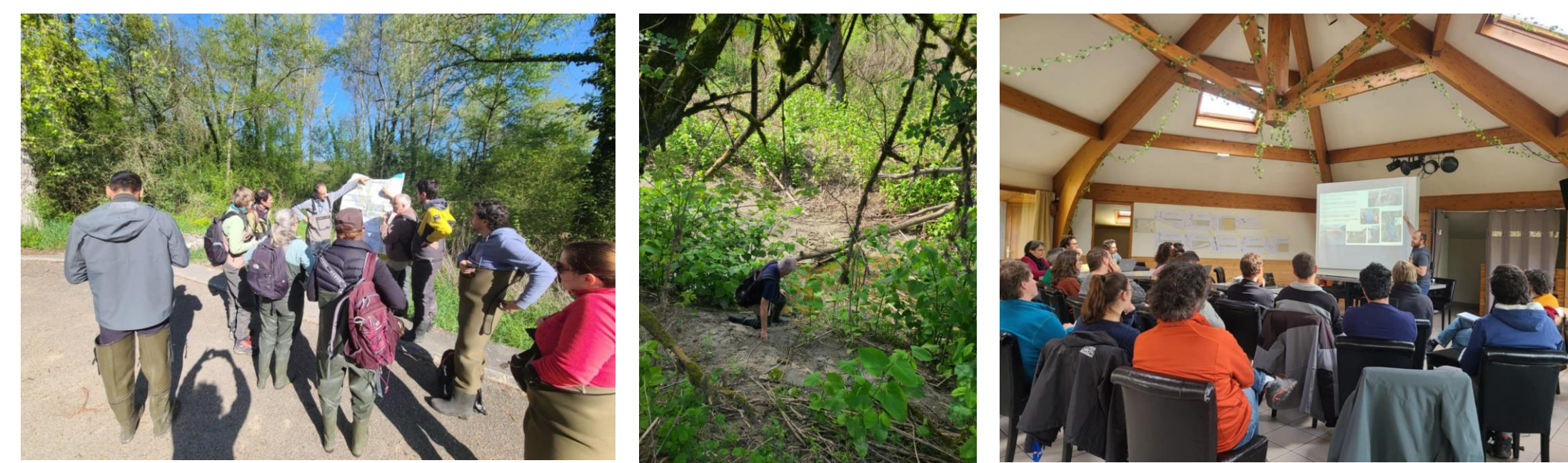
### RhôneEco 2.0 (2024-2028)



- Thematic and methodological expansion
- A more focused analytical research
- High turnover

## Does this new context induces changes in scientific practices?

Participant observation with the formers and the new members



Mixed methods study

- Content analysis and textometry



- Qualitative analysis

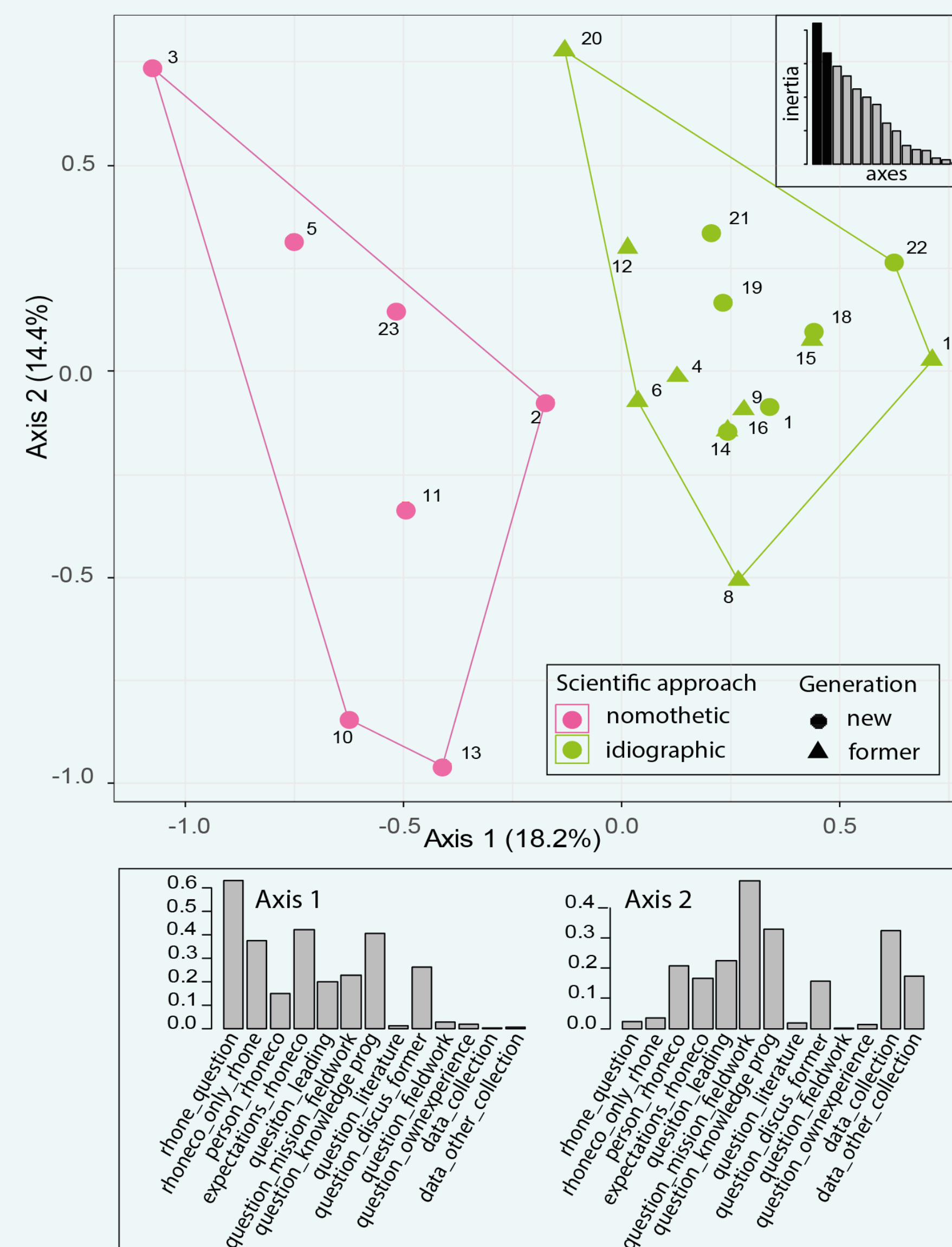
## Results - A new way of making science on the Rhône river

"You know, in the history of researchers, **you had some who were 100% Rhône, Mister Rhône**, throughout their entire career. And then, **people will be less and less like that**. And after us, even less and less" (respondent 4, idiographic scientist and ecologist)

**Idiographic** approach was predominant in the past

understand the Rhône holistically

"the objects we study, it's pretty hard not to see them, each, as **singular objects**. I think **we're in a science of singularity**" (respondent 9, idiographic scientist and ecologist)



**Nomothetic** approach emerges with the arrival of new scientists (8 out of the 12 new ones have this approach)

understand general phenomena – the Rhône is a mean to that end

"I found the opportunity to **test theoretical hypotheses in a restoration context**" (respondent 5, nomothetic scientist and ecologist)

### Idiographics

Idiosyncratic knowledge

Inductive approach

Mobilization of previous observations, fieldwork and managers' knowledge

Holism

### Nomothetics

Generalizable knowledge

Hypothetico-deductive approach

Mobilization of theoretical framework and bibliographic references

Reductionism

## Discussion

What future trajectories for these approaches?

**Nomothetic Science**

Toward idiographic approach?

Will nomothetic scientists become idiographic as they familiarize themselves with the Rhône?

**Idiographic Science**

Toward nomothetic approach?

Will idiographic scientists become nomothetic to fit to the neoliberal context?

Science and Technology Studies for greater reflexivity in environmental sciences

"I'd like to thank you for this interview because it finally gave me the **opportunity to talk about things we don't often talk about**" (respondent 9, idiographic scientist)

### Neoliberalization

Short-term contracts, high mobility, and need for productivity

**Nomothetic Science**

"It has to be **faster**. Researchers take **less time observing** [...] Given the **competition for research jobs** [...] When you're working on a program like Rhôneeco, **results happen every five years, not every six months**. And **today**, it would be **more difficult** for a researcher to do just that" (respondent 4, idiographic scientist and ecologist)

Affiliations:

\*UMR 5023 LEHNA, Université Lyon 1

\*UMR 5600 EVS, Université Lyon 2

Bibliography:

<sup>1</sup>Lave, R. (2016). Stream restoration and the surprisingly social dynamics of science. *WIREs Water*, 3(1), 75-81

<sup>2</sup>Woolgar, S., & Latour, B. (1979). *Laboratory Life: The Social Construction of Scientific Facts*. Princeton University Press