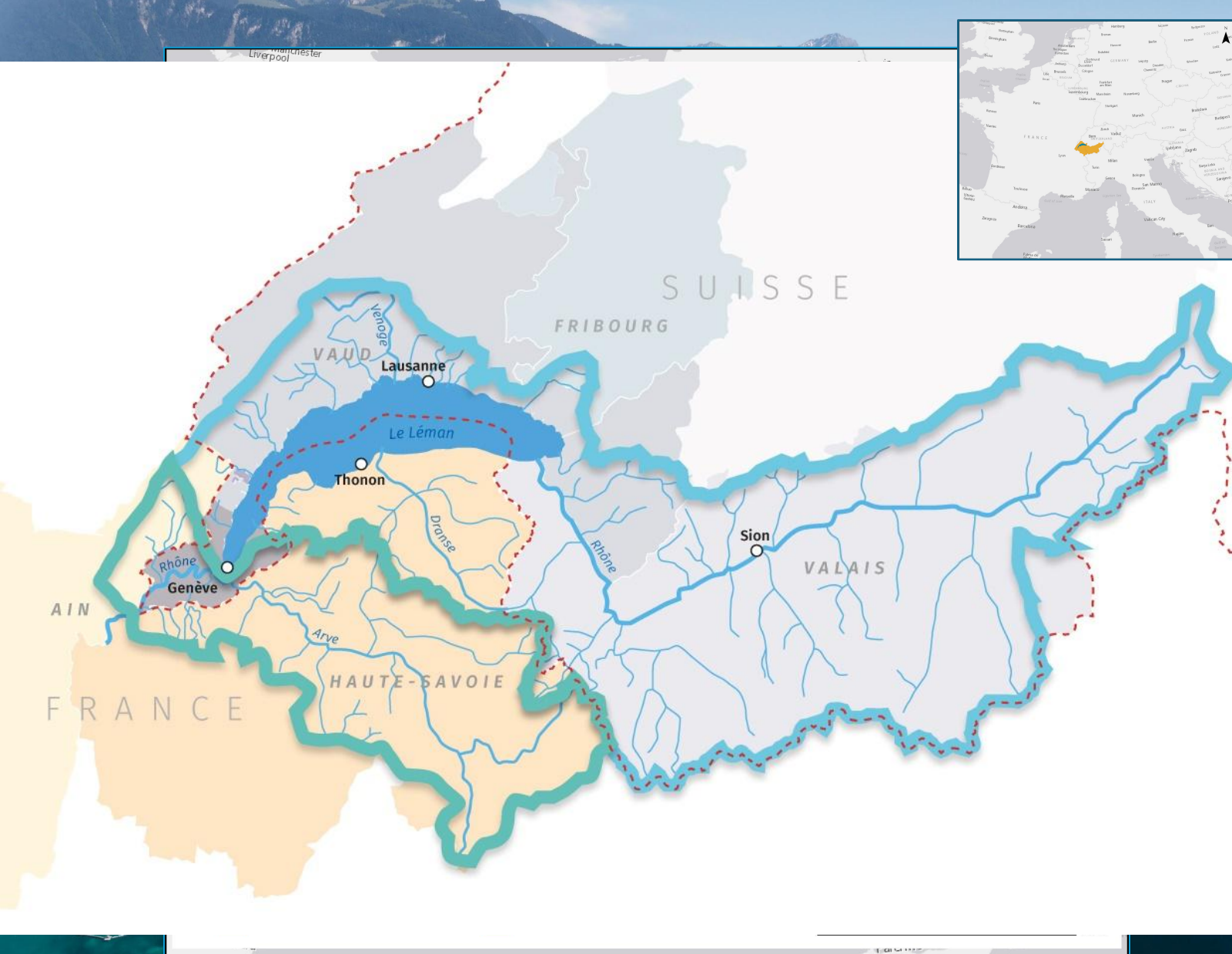


# Science and Cross-Border Governance United Against Emerging Pollution Challenges in Lake Geneva



Dr Nicole Gallina - General Secretary

Contact : [n.gallina@cipel.org](mailto:n.gallina@cipel.org)  
[www.cipel.org](http://www.cipel.org)



## LAKE GENEVA

Largest lake in Western Europe

Area lake: **580 km<sup>2</sup>**

Volume: **89 billion m<sup>3</sup>** - Depth: **309m**

Main tributary: **Rhône river**

Flow rate: **182 m<sup>3</sup>/s**

## TERRITORY SHARED



by **Switzerland and France**

**2** countries

**2** french departments: Ain, Haute-Savoie

**3** swiss cantons: Geneva, Vaud, Valais

**554** municipalities

## CATCHMENT AREA

Surface area: **10 000 km<sup>2</sup>**

Population: **2.3 million**

Dinking water supply: **1 mio habitants**

# LOCATION AND TERRITORY

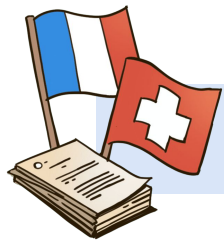


# MISSIONS



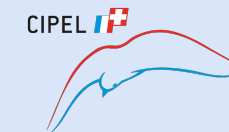
Monitor, identify and raise alerts

Recommend and, when necessary and possible, prescribe



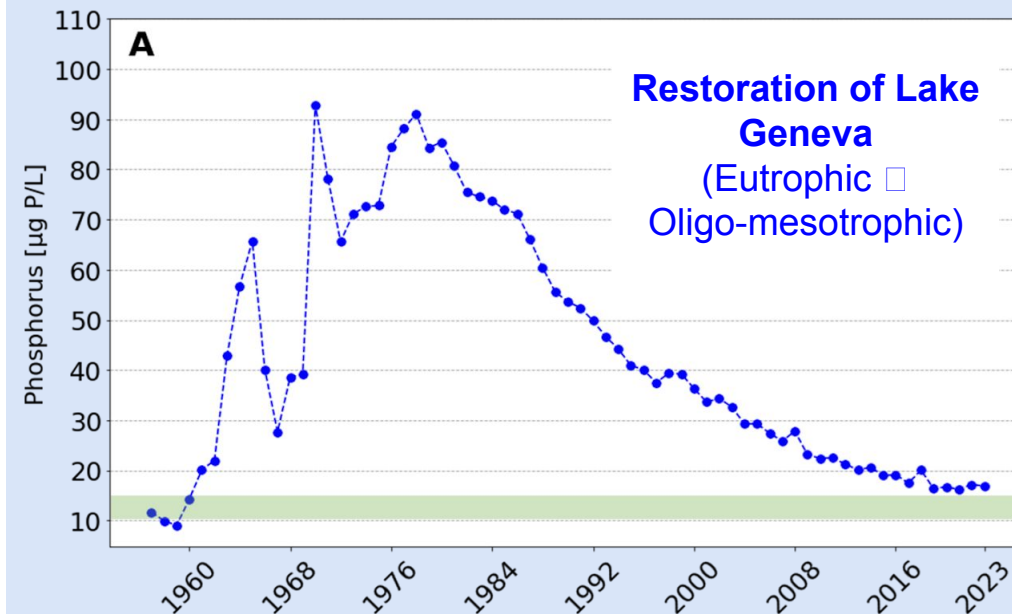
Facilitate and coordinate stakeholders

Inform and raise awareness



COMMISSION  
INTERNATIONALE  
POUR LA PROTECTION  
DES EAUX DU LÉMAN

## About the CIPEL



Coordinated monitoring program  
between France and Switzerland



1957

1960

First worrying results

CIPEL  
Creation



1963

1971

First  
five-year  
program

Permanent  
Secretary



1972

1977

Agreement on  
accidental pollution

Agreement on  
dephosphatization



1980

1991

1<sup>st</sup> Action Plan

4<sup>th</sup> Action Plan  
2021 - 2030



2021

## Commission Delegations

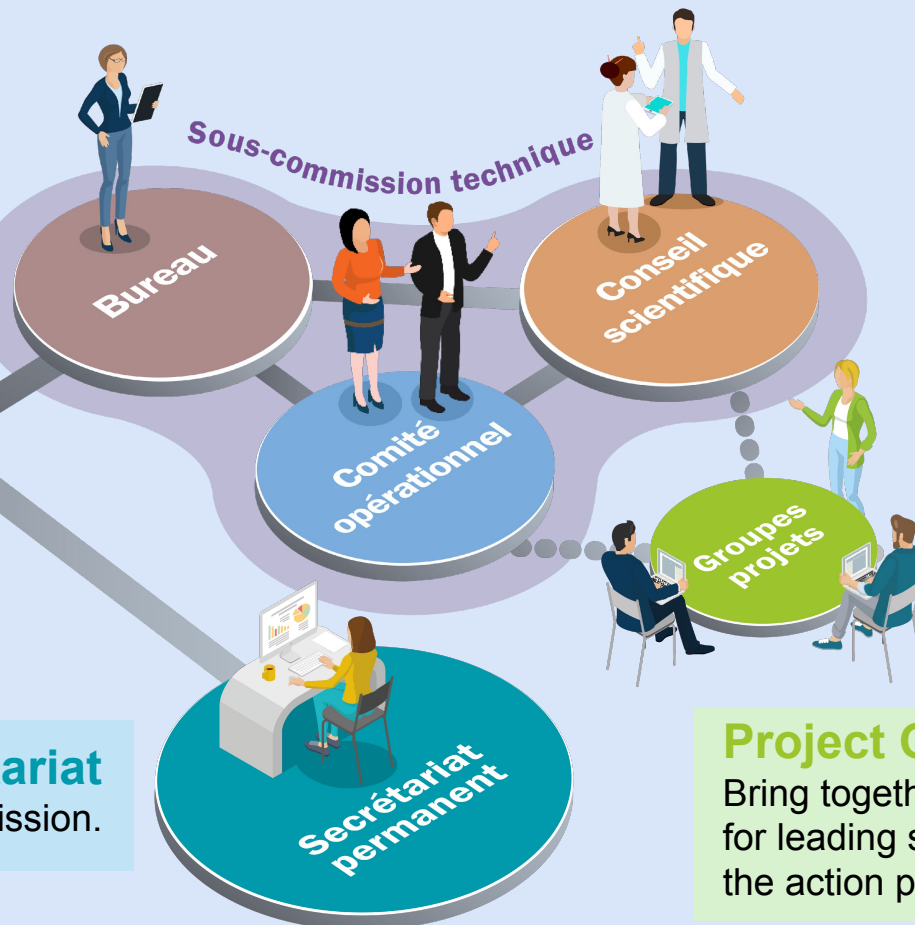
Decision-making body composed of elected officials from the Swiss Confederation and the French Republic.



## Technical Sub-Commission

Develops and oversees the effective implementation of the ten-year action plans.

*Sous-commission technique*



The **Bureau** is the strategic steering body.

The **Operational Committee** composed by the responsible authorities of each territory is responsible for the technical coordination and operational monitoring of the CIPEL action plan.

The **Scientific Council**, composed of researchers specialized in all fields of aquatic sciences, oversees and conducts CIPEL's scientific work and contributes to defining research and analysis priorities.

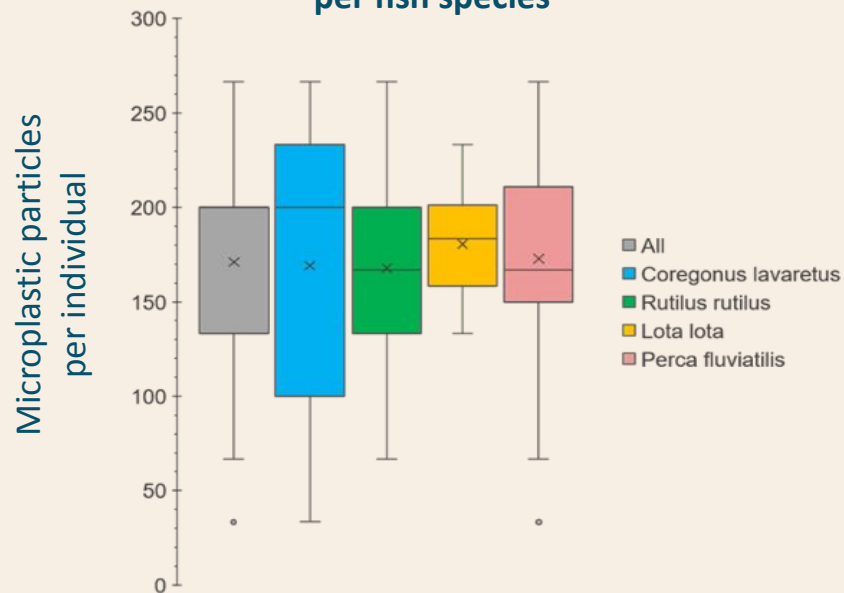
**Permanent Secretariat**  
Coordinates all activities of the Commission.

## Project Groups

Bring together experts responsible for leading specific actions within the action plan.

## Microplastics in Fishes of Lake Geneva

Variability in the number of microplastic particles per fish species



### Methodology

- 89 fish digestive tracts
- Analysis using direct laser infrared imaging (LDIR)



### Results

- Microplastics detected in 100% of the fish
- 100 - 200 particles per individual
- Main polymers: polyamide, polycarbonate, PET and polyurethane.

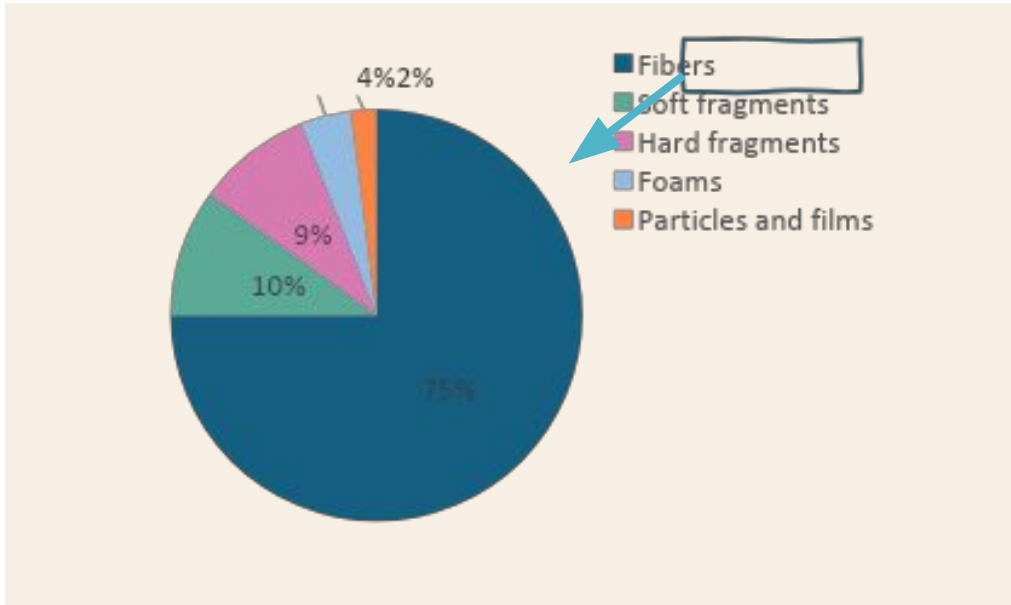
### Conclusions

- Widespread exposure of fish to microplastics
- Potential health risks due to the physical and chemical effects of these particles.

## STRATEGY: IDENTIFY SOURCES, QUANTIFY, ASSESS IMPACT



# Identify and quantify plastic pollution on Lake Geneva beaches



## Methodology

- 25 beaches sampled
- Participative science



## RECOMMENDATIONS

- Push for **stricter public policies** on



- **Urge local businesses** to prevent plastic pellet and fiber leaks
- **Raise public awareness:** no littering in nature, streets, or toilets
- **Inform on plastic in clothing** and encourage use of microfiber laundry bags

## Results

- Microplastics: **7'600 particles / m<sup>2</sup>** (60% textile fibres)
- Macroplastics: **packaging, cigarette ends, pellets**
- **Communication to municipalities** in the Lake Geneva catchment area

## Conclusions

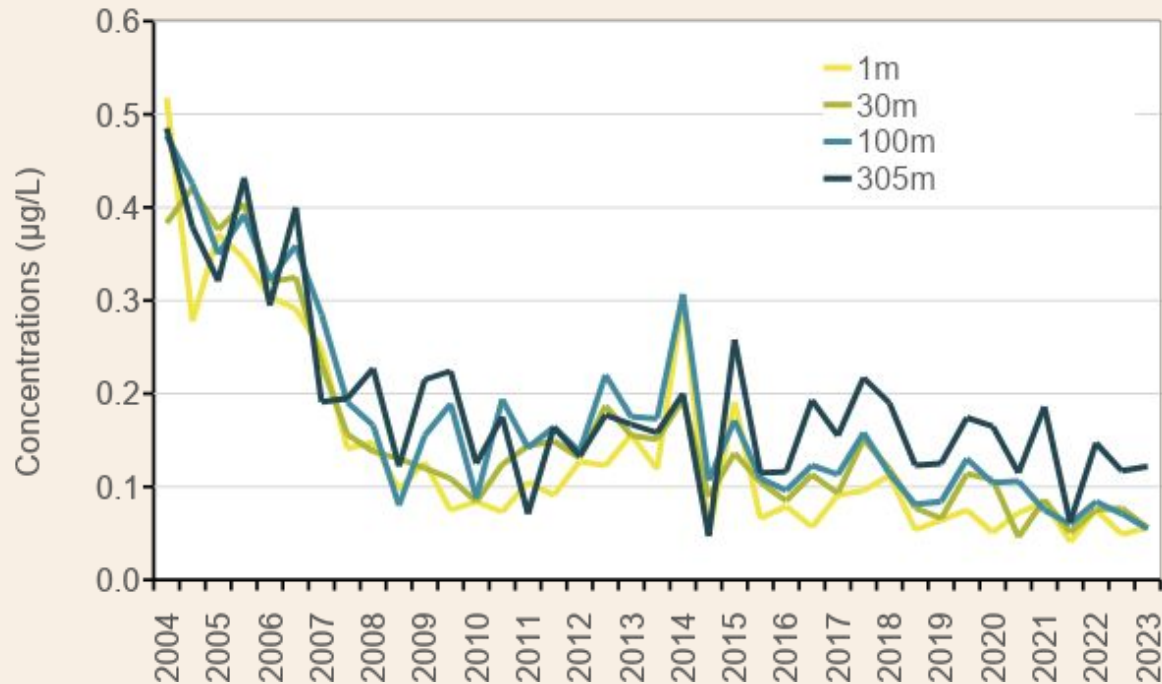
- **Widespread pollution on beaches**
- **Preventive measures needed** to limit plastic input

# MICROPLASTICS ON THE BEACHES OF GENEVA

## Pesticides in Lake Geneva waters

### Conclusions

- Campaign confirmed the general downward trend in concentrations in Lake Geneva
- Importance of adapting the list of substances and improving analytical methods



## SURVEY STRATEGY

### Substances investigated:

Pesticides, metals, pharmaceutical residues, and PFAS

### Compartments studied:

#### Lake water column and affluents

Regular monitoring since **1975**, with several campaigns per year (PFAS since 2024)

### Sediments studies:

1976, 1988, 2005, 2015, 2025 (PFAS)

### Mussels (bioindicators):

Occasionally, for metals and organic compounds.

### Fish:

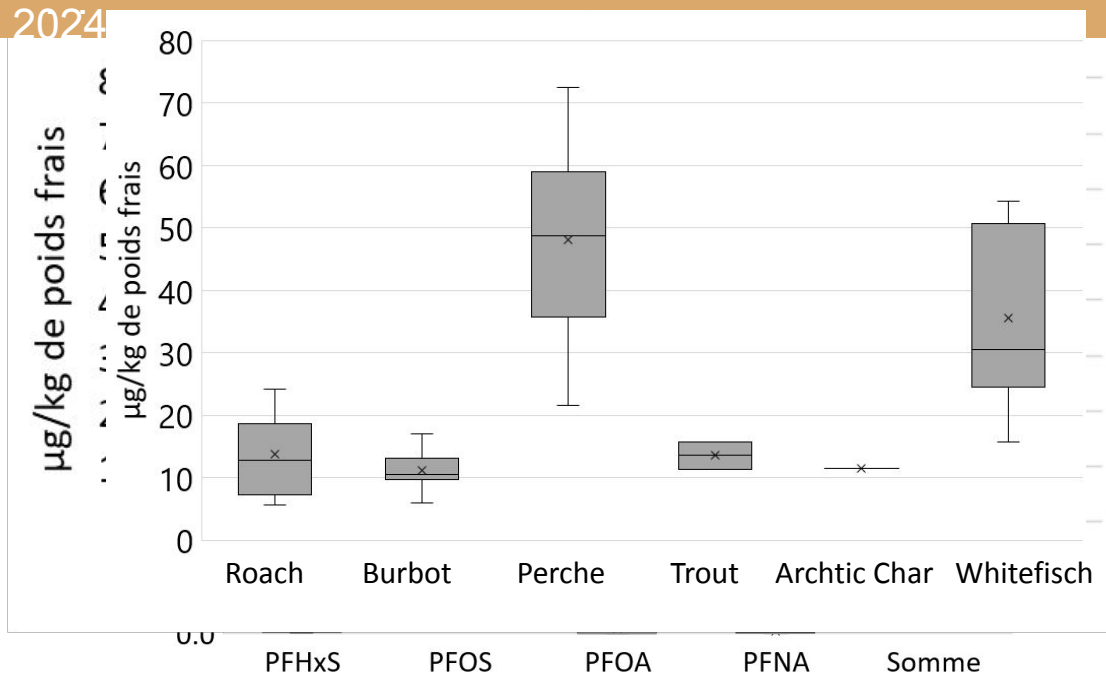
Continuous monitoring since **1973**, reinforced in since **2008** to include **PFAS**.  
→ Various species (perch, burbot, whitefish, etc.) analyzed by compartment: **fillet, liver, carcass**.



## PFAS in Lake Geneva Fish: Key Findings from the 2024 Campaign

- Assess the current PFAS contamination levels in Lake Geneva fish (N=51), across **different species** and **tissues**.
- Track temporal trends by comparing results with previous campaigns (2008–2020).
- Evaluate health risks and regulatory compliance under the new Swiss and EU thresholds for food safety.

### PFOS concentrations in whole fish – species comparison



### Conclusion

The 2024 data confirm a **significant decline in PFOS**, a low global risk for consumption, but the need for **continued vigilance, especially for long-chain PFAS** and specific species like burbot.



At CIPEL, science and governance go hand in hand, making it possible to act quickly and effectively when emerging pollution issues arise.

*Contact : [n.gallina@cipel.org](mailto:n.gallina@cipel.org)  
[www.cipel.org](http://www.cipel.org)*



CIPEL 



INTERNATIONAL COMMISSION FOR  
THE PROTECTION OF LAKE GENEVA

Thank you for your attention



Contact : [n.gallina@cipel.org](mailto:n.gallina@cipel.org)  
[www.cipel.org](http://www.cipel.org)