INRAØ

JOB OFFER

Post-doc DNA metabarcoding : microbial and diatom ecology

2 years from November 2022 (start date flexible)

> You will work in the framework of a Horizon Europe project
> 2 years contract in post-doc from November 2022. Start date is flexible, but must be before January 2023.
> You will analyze large metabarcoding datasets from lakes and rivers for different microorganisms (diatoms, full microbial diversity). You will also participate to training courses for knowledge transfer (eDNA).
> Your work place: on Lake Geneva shore in France : UMR Carrtel, Thonon les Bains, France
https://www6.lyon-grenoble.inrae.fr/carrtel/Unit

YOUR MISSION

■ Framework :

The person will be engaged in the framework of the Biolaweb, a Europe Horizon Twinning project. This project is carried out within INRAE (France), NIVA (Norway) and UB-ICTM (Serbia). This project aims at providing knowledge transfer and exchange of best practice in the field of eDNA metabarcoding and freshwater biomonitoring to UB-ICTM. The project will improve knowledge on the ecology of freshwater organisms with metabarcoding. Project kick-off meeting will be in October 2022 and the project will end in 2025.

■ Work context:

This recruitment will enable to fulfill a temporary mission of a research engineer (post-doc) mobilizing knowledge in microbial ecology, molecular biology and DNA metabarcoding. The person will work with scientists of INRAE in France (F. Rimet, A. Bouchez, I. Domaizon) and NIVA in Norway (S. Schneider) with a good experience in these fields (microbial and diatom ecology, molecular biology and metabarcoding, lake and river functioning).

■ Missions:

Phytoplankton and diatoms are ecological indicators used to assess the quality of lakes and rivers. The current methods are based on microscopic identifications. We have developed methods to identify phytoplankton and diatoms based on short DNA fragments -metabarcoding- to automate and accelerate the identifications.
The project will start in October 2022 for a 3 years long period. The person who will be engaged will participate to knowledge transfer to UB-ICTM (with several permanent staffs) and will produce new knowledge on diatom and microbial ecology in lakes and rivers using existing metabarcoding datasets.

■ Main activities:

The person will be responsible of two tasks:
- Research (70% of the work time):
  - Our team (UMR Carrtel) has acquired several large metabarcoding datasets on lakes and rivers that enable addressing key ecological questions on freshwater microbial diversity. Several datasets are on diatoms metabarcoding: they encompass several thousands of samples in lakes and rivers (on continents and islands) covering temperate, tropical and Nordic climates. Other large metabarcoding datasets are encompassing the full microbial diversity mostly in large and high-altitude lakes in France.
    These datasets will be analysed by the post-doc to address key questions on microbial assembly rules, ecophylogenetics, endemism and barriers dispersal. Questions about

Species Area Relationship, regional occupancy, specific genotypic diversity and site occupancy maybe addressed.

- Organization of training and courses (30% of the work time): the objective of INRAE is to transfer knowledge on diatom and phytoplankton metabarcoding. This will be done with permanent staff (researchers, technicians) and other post-doc and PhD of INRAE CARRTEL.
  - o 3 workshops of approximately 5 days (1st in Serbia: a course on metabarcoding basics, 2nd in Serbia: a summer school on using DNA metabarcoding for biomonitoring/ecology, 3rd online: bioinformatics using DADA2). These training activities will be carried out with NIVA. For INRAE, the courses will be given by permanent staffs (researchers, technicians) the post-doc and other projects post-doc and PhD already skilled in these methods. Technical organization in Serbia will managed by UB-ICTM (hotels, food, registrations…).
  - o 1 short stay of Serbian scientists in France for DNA extraction/library preparation, the post-doc and permanent staff (researchers and technicians) will participate to the mentoring.
  - o Assistance to develop biotic indices based on DNA metabarcoding data.

PERSON WE ARE LOOKING FOR

- Recommended education:

  - PhD in ecology, biology or related disciplines, good skills in microbial ecology, experienced user of R, bio-statistics, molecular biology

- Preferred skills:

  - Good skills in molecular biology, high throughput sequencing
  - In-depth knowledge in bioinformatics, phylogeny: for instance DADA2 (R), Mothur, RaxML
  - Good knowledge aquatic biomonitoring

- Preferred experience:

  - A lab experience would be appreciated

- Desired skills :

  - Leadership and critical thinking skills
  - Ability to work in a team

↘ Terms of reception

- Place : UMR Carrtel, INRAE, Thonon, France

- Contract : Fixed term contract, research engineer

- Contract duration: 2 years

- Start date: 1st October 2022 – 1st January 2023 (flexible)

- Salary (indicative): between 2300 and 2900 € (gross salary) depending on experience

↘ How to apply

Send a letter of motivation and a CV to Frederic Rimet

- e-mail : frederic.rimet@inrae.fr

- Post mail : UMR Carrtel INRAE, 75 bis avenue de Corzent, 74200 Thonon les Bains, France https://www6.dijon.inrae.fr/thonon/

❌ Application deadline: Septembre 15, 2022

The National Research Institute for Agriculture, Food and the Environment (INRAE) is a public institution with more than 10,000 employees throughout France. INRAE is Europe's leading agricultural research institute and conducts targeted research for an adapted food supply, for a preserved environment and for a competitive and sustainable agriculture.