

<b>Thesis Title</b>	<b>Unravelling the complexity of PFAS contamination in marine organisms</b>
<b>Contract type</b>	<b>PhD position</b>
<b>Department/Office</b>	RBE/CCEM
<b>Duty station</b>	<b>Centre Atlantique, Nantes</b>
<b>Date of issue :</b>	
<b>Doctoral School</b>	<b>Végétal, animal, aliment, mer, environnement (VAAME)</b>
<b>Thesis supervisor</b>	<b>Yann Aminot</b>
<b>Co-supervisors</b>	<b>Aurore Zalouk-Vergnoux</b>
<b>Reference (HRD)</b>	

### The Institute and the recruiting department

Within Ifremer, the French ocean institute and a reference for marine scientific research, the Chemical Contamination of Marine Ecosystems unit (CCEM - <https://ccem.ifremer.fr/en>) undertakes research on the characterisation of the oceanic chemical exposome and its impact on marine species. Its objectives are to improve our understanding of the dynamics of chemical contaminants in the marine environment, to explore their transfer towards and within marine organisms, their biological effects, and to provide an assessment of the quality of the marine environment. Participating in several French and international projects, the CCEM unit has recognised expertise in the study of hydrophobic organic contaminants and is equipped with state-of-the-art instrumental and preparatory means for their analysis at trace levels.

### Summary

The global use and release of persistent and bioaccumulative per- and polyfluoroalkyl substances (PFASs) has caused a widespread and ubiquitous contamination of the marine ecosystems. Twenty years after the first phase-outs and restrictions on these compounds, the ever-increasing number of novel or overlooked marketed substances has rendered the contamination patterns complex and compound identification challenging. Focusing on a limited set of PFASs, most scientists have left a large fraction unexplored. High levels of this “dark matter” in bivalves of the French coasts demonstrated the need to account for it for an accurate environmental impact assessment.

This PhD project aims to acquire advanced knowledge on the composition and fate of currently unidentified PFASs found in marine organisms. To fill this knowledge gap, this project will: (1) identify unknown PFASs by applying state-of-the-art analytical techniques, (2) characterise their occurrence in marine biota, and (3), assessing their biomagnification potential in marine trophic networks.

Using marine organisms of different trophic levels from contrasted ecosystems, the PhD student will have the opportunity to develop and implement a complete analytical strategy including sample preparation, chromatographic separation coupled to low- and high-resolution mass spectrometry with appropriate ionisation modes, and signal processing for the identification of unknown compounds. Controlled experiments could also help to characterise the dynamics of these contaminants at the individual level (bioaccumulation, depuration, biotransformation).

Fitting in several ongoing research projects, this PhD studentship will offer the candidate a unique opportunity to develop a desirable skillset at the forefront of science, with a team of leading experts in contaminant biogeochemistry and environmental analytical chemistry.

### Key words

Contaminants of emerging concern, Per- and polyfluoroalkyl substances, non-target screening, biomonitoring, trophic transfer

### Expected profil

This PhD studentship would particularly suit a dynamic and curious MSc graduate in environmental and analytical chemistry (or equivalent), with a taste for labwork. Knowledge of and interest in top-notch techniques for organic contaminant analysis is desirable, broader knowledge in bioinformatics/biostatistics would be valuable.

### Specific working conditions

- Access to laboratories under controlled atmosphere dedicated to the analysis of organic contaminants and to all the instrumentation necessary to conduct the project (on site and through collaborations), as well as from a supervision by qualified technical and scientific staff.
- Opportunities to participate in summer schools, conferences, congresses or workshops and support for a short-term placement in a research lab abroad.
- Travel is foreseen for collaborations with external research teams.

A PhD studentship in Ifremer is a unique and exciting opportunity to contribute to the Institute's scientific and technological priority themes. A gross monthly salary of 2300 euros will be granted for a period of 3 years, and cannot be combined with any other scholarship.

### How to apply for this position?

Your application file must include (in English or French):

- a curriculum vitae
- a cover letter
- one or more reference letters
- an academic transcript (Bachelor + Master 1 and first semester Master 2)

Your application must be **compiled into 2 PDF files, up to 1.5 MB for each file:**

In case of any problem in attaching your documents, please upload your CV on this page (this step is mandatory for your application to be considered) and send all the documents to the thesis supervisors: [yann.aminot@ifremer.fr](mailto:yann.aminot@ifremer.fr) and [aurore.zalouk-vergnoux@univ-nantes.fr](mailto:aurore.zalouk-vergnoux@univ-nantes.fr)

The deadline for applications is April, 25<sup>th</sup>, 2022. However, we highly recommend the candidates to get in touch with the supervisor at the earliest.

In parallel, please submit your application to the doctoral school: Doctoral school VAAME

Doctoral students' contracts will start as of October 1st, 2022, subject to the submission of administrative documents authorizing Ifremer to recruit the doctoral student (certificate of completion of the Master 2 or engineering degree + visa for foreign doctoral students outside the EU).

Our job offers on the website /Ifremer careers /[Jobs and Internships](#), or [Offres d'emploi/stage](#) (French version)

Follow us via LinkedIn , Twitter  and Facebook 