Research evaluation

# FINAL RESUME ON THE RESEARCH UNIT

CCEM - Contamination Chimique des Écosystèmes Marins

## UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Institut français de recherche pour l'exploitation de la mer - IFREMER

**EVALUATION CAMPAIGN 2020-2021**

GROUP B

Report published on September, 24 2021

| In the name of Hcéres[1]: | In the name of the experts committee[2]: |
| --- | --- |
| Mr Thierry Coulhon, President | Mr Patrick Roose, Chairman of the committee |

Under the decree No.2014-1365 dated 14 November 2014,

[1] The president of Hcéres "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

[2] The evaluation reports "are signed by the chairman of the experts committee". (Article 11, paragraph 2).

Tables in this document were filled with certified data submitted by the supervising body on behalf of the unit.

# UNIT PRESENTATION

**Unit name:**

Contamination Chimique des Écosystèmes Marins

**Unit acronym:**

CCEM

**ID RNSR:**

20112282B

**Application type:**

Fusion, scission, restructuring

**Head of the unit (2020-2021):**

Mr Thierry Burgeot / M. Emmanuel Ponzevera

**Project leader (2021-2025):**

Mr Emmanuel Ponzevera

**Number of teams and/or themes:**

1

# EXPERTS COMMITTEE MEMBERS

| | |
|---|---|
| **Chair:** | Mr Patrick Roose, Royal Belgian Institute for Natural Sciences, Belgium |
| **Experts:** | Mr Denis Allemand, Centre Scientifique de Monaco (representative of CS IFREMER)<br>Mr Fernando Piedade Carvalho, Universitè de Lisbonne- Instituto Superior Tecnico, Portugal<br>Mr Christophe Cloquet, CNRS, Vandœuvre-lès-Nancy<br>Ms Béatrice Gagnaire, Institut de Radioprotection et de Sûreté Nucléaire, Saint-Paul-lez-Durance |

# HCÉRES REPRESENTATIVE

Mr Serge Delrot

# REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Tristan Renault, IFREMER

Mr Wilfried Sanchez, IFREMER

# INTRODUCTION

## HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Biogeochemistry and Ecotoxicology (BE) unit is housed in the headquarters facility of IFREMER's Atlantic Centre at Nantes situated in the heart of the university campus.

The unit is one of the sixteen units of the IFREMER scientific department "Biological Resources and Environment", one of the four scientific departments of IFREMER. Although the unit was created in 2005 as the result of a major reform, its expertise dates back to the decades before. In 2012, an integrated project was drafted to carry out the national research and monitoring mission related to both chemical contaminants (CC) behavior and their biological effects. The challenge of this project was to develop scientific knowledge on the fate and biological effects of CC to enrich the quality of expertise and Support to Public Policy (SPP). At the beginning of the evaluated period, the unit was structured in three teams (Laboratoire Biogéochimie des Contaminants Organiques, LBCO), Laboratoire Biogéochimie des Contaminants Métalliques, LBCM; Laboratoire d'Écotoxicologie, LEX). In 2017, the SEARCH team (Surveillance Et Analyse du Risque CHimique) was created and added to the existing laboratories in order to bring together monitoring, chemical risk assessment and the national coordination of Marine Strategy Framework Directive (MSFD) descriptor 8 (D8 Contaminants). For the period 2022-2026, a new organizational structure is foreseen that will merge all laboratories and specific activities (Réseau d'Observation de la Contamination CHimique, ROCCH, MFSD scientific pilot and Chemical Risk Assessment Cell) hence regrouping 23 people in a unique team. The BE unit is currently organized in a five-team structure (LBCO, LBCM, LEX, SEARCH, BE) but will be renamed for the next contract CCEM (Contamination Chimique des Écosystèmes Marins) and will be reorganized as a one team-unit working on two main axes and one transversal axis.

## RESEARCH ECOSYSTEM

As a unit in one of the four departments of IFREMER, it contributes to the higher goals of IFREMER such as an integrated approach to research in marine sciences by increasing the knowledge of the processes that govern the marine ecosystems, understanding changes that affect them and by contributing to observation monitoring and assessment of the marine environment. The unit also contributes to the Public Policy Support (PPS) role of IFREMER.

CCEM conducts its work with French universities and institutes within structures of excellence (LabEx COTE), Observatory of Universe Sciences of Nantes Atlantique (OSUNA) and three research groups (GDR) in Aquatic Ecotoxicology (GDR EA), in Trophic Ecology (GRET), and Microplastics Research (GDR Polymères et Océans).

## HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE Sciences du vivant et environnement
SVE2 Biologie Cellulaire, Imagerie, Biologie Moléculaire, Biochimie, Génomique, Biologie Systémique, Développement, Biologie Structurale, ST4 Chimie

## MANAGEMENT TEAM

2015 - March 31, 2020, Mr Thierry Burgeot

From April 1, 2020 Mr Emmanuel Ponzevera

2022-2026, Mr Emmanuel Ponzevera

## UNIT WORKFORCE

| Active staff | Number 06/01/2020 | Number 01/01/2022 |
|---|---|---|
| Full professors and similar positions | 0 | 0 |
| Assistant professors and similar positions | 0 | 0 |
| Full time research directors (Directeurs de recherche) and similar positions | 4 | 3 |
| Full time research associates (Chargés de recherche) and similar positions | 0 | 0 |
| Other scientists (“Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.”) | 8 | 7 |

| | | |
|---|---|---|
| High school teachers | 0 | 0 |
| Supporting personnel (ITAs, BIATSSs and others, notably of EPICs) | 14 | 13 |
| **Permanent staff** | **26** | **23** |
| Non-permanent professors and associate professors, including emeritus | 0 | |
| Non-permanent full time scientists, including emeritus, post-docs (except PhD students) | 0 | |
| PhD Students | 0 | |
| Non-permanent supporting personnel | 2 | |
| **Non-permanent staff** | **2** | |
| **Total** | **28** | **23** |

# GLOBAL ASSESSMENT OF THE UNIT

The IFREMER department "Biological Resources and Environment" to which the CCEM (former BE) unit belongs, aims to improve knowledge about ocean resources and to evaluate and develop their sustainable exploitation. This includes the development of knowledge on the current and potential pressures that affect the marine environment and its living resources.

In this context, the CCEM s research scope is (i) the occurrence and evaluation of temporal trends of historical and emerging metallic contaminants (MC) and organic contaminants (OC) in the marine biota, sediments and water, (ii) the transfer of chemical contaminants (CC) through the food chain to major predators, and (iii) their biological effects on individuals and populations. The unit also aims to create a strong synergy between the continuum of research and monitoring by combining the expertise of researchers, engineers and technicians. The unit is currently organized as a five-team structure (LBCO, LBCM and LEX teams with research-centered activity, SEARCH mainly dedicated to expertise activities, and BE focusing on administrative functions).

The scientific output, reputation and appeal of the unit are very good. The ratio of peer-reviewed papers in indexed journals versus the number of researchers is very high (128 articles in journals of the discipline such as *Science of the Total Environment Chemosphere, Aquatic Toxicology*, *Marine pollution Bulletin*, *Marine Environmental Research*, *Science of the Total Environment* ), with 1.9 peer-reviewed papers/FTE/year. Sixty % of its peer reviewed research papers result from international partnerships. However, the collaboration between teams is very low and must be improved.

Among the five teams and considering that SEARCH and BE have expertise activity, the LBCM and LEX teams are the most performant ones for scientific output.

The unit was involved in the coordination of sixteen national public grants (ANR, OFB, Agences de l'Eau, CPER) and ten local (*OSUNA, LabexCOTE*) grants and participated to 20 other grants (including participation to a European Interreg grant MONITOOL) over the period.

CCEM has a solid international academic recognition in its field illustrated by strong and excellent collaborations with universities and partner institutes (with 50 countries in Europe, North and South America, Africa, Asia, Pacific, including 25 international research organisms and 27 universities) in particular through its expertise and the quality of the data provided by the ROCCH (Chemical Contamination Observation Network) network it coordinates. They also co-coordinate the MISTRALS/MERMeX program, are implicated in three GDR (Aquatic Ecotoxicology, Trophic Ecology (Microplastics) at the national level and are engaged in the European network NORMAN. They have further participated in an innovative European training network and organized in 2016 the European Congress of Environmental Toxicology, a major conference in ecotoxicology, which is a sign of European recognition of their skills in the field of ecotoxicology and environmental risk assessment. Moreover, this international reputation is extended to support to public policies at the international level as illustrated by its contributions to the three expert groups of the International Council for the Exploitation of the Sea (ICES) and the piloting of the descriptor 8 of the European Water Framework Directive.

The unit is actively involved in training through research with a total of 33 Master students and eleven PhDs in the period of evaluation which is very good given the number of HDR (4). However, a relatively high number (3) of PhD dropouts merits an evaluation of the selection criteria.

The unit is seen as an attractive work environment (organization, collaboration, communication, facilities, surroundings) by its highly skilled and motivated staff. Recent departures, mostly due to retirements, have however significantly dropped the number of permanent staff members threatening the ability to perform the mission. For the next period, the unit will be formed of 23 people in 2022, but three retirements are planned after (13 % of the unit). The recent and coming departures and retirements of a relatively large number of people with special skills rises a major concern, because this can compromise the activity of the unit.

The new project broadly follows the past activities with a new organization, eliminating teams, and only based on two research axes: Axis 1 'Chemical contaminants dynamics in the marine environment' and Axis 2 'Transfer of chemical contaminants towards and into marine organisms and biological effects'. These research axes are further strengthened by a transversal action called Axis T: Chemical quality of marine ecosystems: tools for observation and chemical risk assessment. The new research topics are fully compatible and in line with the IFREMER strategy (Horizon 2030). The objectives are supported by an investment plan that foresees the acquisition of new instrumentations (HRMS system for NTS) allowing to increase the number of identified chemicals, better selectivity, improved quantification limits and the ability to identify metallic contaminants sources (MC-ICPMS). Furthermore, two scientists (CR) were recently recruited (2020, 2021). However, the new project is very ambitious and dependent on a workforce that exists to a certain extent only on paper. The ecotoxicology team is seriously understaffed in relation to that ambition and the vision on the future role of ecotoxicology is deviating from that of the management of the Department.

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