

Master's internship: Integrated modelling of offshore wind (F/M/X)

Want to join a human-scale organisation with a dynamic, committed and caring team focused on innovation for the energy transition? France Energies Marines offers you the chance to contribute to applied research recognised by industry stakeholders and directly addressing the challenges of the energy transition. Join us to play an active part in developing a rapidly growing industry. So, let's create tomorrow's world together!

The France Energies Marines Institute

France Energies Marines is an offshore wind research and innovation centre whose industrial, economic and societal impact is recognised in France and internationally.

Its mission? To overcome the challenges facing the offshore wind sector. Supported by the French government, a multidisciplinary team of over 90 staff, a network of international experts and unique facilities, the Institute conducts collaborative research projects driven by excellence.

The resulting findings are transferred to the industry through research and expert services, licensing agreements, know-how transfer, and participation in expert committees and networks.

These activities are organised into four complementary departments: Wind and Ocean Dynamics, Systems and Performance, Biodiversity and Interactions, Ecosystem and Society. Cross-cutting services support these activities.

Background

Offshore wind development requires approaches that can assess its effects on marine ecosystem functioning and the ecosystem services they provide. These effects occur at several scales, from local physical changes near infrastructure to ecosystem consequences at regional scale. It is therefore essential to consider the entire chain of impacts, from physical processes to ecosystems and then to human activities.

To identify the most relevant approach, the work will draw on the findings of the International Council for the Exploration of the Sea's WKIMORE workshop, dedicated to characterising integrated ecological models applied to offshore wind. It will also include approaches developed in other contexts, such as offshore oil and gas installations, assessing their transferability to offshore wind. The aim is to propose a new integrated modelling framework.

Internship description

How can changes in the marine environment be linked to ecosystem responses in the context of offshore wind development? This internship offers the opportunity to test an integrated modelling framework.

The work will draw on models used by the scientific community (CROCO, ERSEM, Ecoupath with Ecosim...), while exploring new ways to link physical, biogeochemical and ecological processes. The work is organised into four stages:

- 1. Explore and compare existing approaches (1.5 months):** critically review modelling frameworks for the environmental impacts of offshore wind; compare processes, scales, data requirements and indicators; identify coupling opportunities and methodological challenges.
- 2. Design an integrated modelling architecture (1.5 months):** propose a strategy for coupling physical, biogeochemical and ecosystem models; define exchange variables and key mechanisms linking environmental changes to ecosystem responses.
- 3. Develop and test a simplified demonstrator (2 months):** build an initial model to test component dynamics and their couplings. This numerical laboratory will allow different approaches to be explored, their performance assessed and their limitations identified.
- 4. Communicate results and outline future directions (1 month):** write a scientific report presenting the demonstrator and lessons learned from testing; propose a roadmap towards an integrated framework for assessing offshore wind impacts from local to regional scales in the North Sea.

Profile and skills

Education

- Final-year Master's or engineering student in environmental/marine/fisheries modelling or bioinformatics.

Professional attributes

- Critical thinking and synthesis skills.
- Ability to formalise and test a modelling framework.

Specialist knowledge

- Proficiency in programming languages (Python, R, C++).
- Familiarity with UNIX and Vibe Coding.
- Numerical and mechanistic environmental modelling.

Additional assets:

- *Multidisciplinary interest: physics, geochemistry, ecology.*
- *Marine ecology and ecosystem functioning.*

Practical information

Contract type	Final-year Master's internship
Contract duration	6 months
Stipend	€960 gross per month (depending on level)
Work location	Le Havre, France Energies Marines Eastern Channel–North Sea branch
Start date	01/02/2027 (flexible)
Application deadline	08/11/2027

In accordance with regulations, applicants with disabilities will be given priority where qualifications and skills are equivalent.

How to apply

- Applications must consist of a **CV** and a **cover letter**.
- In the case of a candidate being seconded by a member of France Energies Marines, the application must mention the agreement of the current employer.
- To apply, please go to the France Energies Marines **website** under the [Join Us](#) section.

Our ref: FEM-SAS-2026-312

Date: 15/10/2026

