

BIODHYL

Biofouling integrative characterization and description of hydrodynamic loadings



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DURATION: 36 months | LAUNCH: 2022 | BUDGET: €1,607K

CONTEXT

The current trend is to limit or eliminate cleaning operations in farms in order to preserve their reef effect and thus reduce their environmental impact, while drastically limiting maintenance costs. This is only possible if the phenomenon of biocolonisation is sufficiently understood to be anticipated. **A focus on mooring lines and dynamic cables seems essential, as these key components are presumed to have a different hydromechanical behaviour and therefore a different lifetime once colonised. As biocolonisation can vary according to environmental conditions, it is also necessary to characterise biofouling on the sites of future wind, tidal and wave energy farms.**



TECHNOLOGIES



STAGES OF THE VALUE CHAIN

Preparatory studies

Design

O&M

Dismantling

OBJECTIVES

- To better understand the structural and environmental impacts of the development of biofouling on floating systems
- To identify the most reliable and robust techniques to characterise biofouling in an automated way

EXPECTED RESULTS

- Increase of the database elaborated in 2018 as part of the atlas of biofouling along the French coasts
- Recommendations on the complementary use of metabarcoding and taxonomic analysis
- Definition of a methodology to characterise the mechanical properties of biofouling for realistic basin tests
- Identification of the components of the mooring lines and dynamic cables most affected by biofouling
- Roadmap for developers to choose technologies for automated biofouling recognition and metrology

SCIENTIFIC CONTENTS

- **In-situ characterisation of biofouling and study of the influence of parameters** such as immersion time, depth, physico-chemical conditions, and site hydrodynamics
- **Development of methodologies** to combine morphological approach and metabarcoding to better characterise biofouling
- **Definition and characterisation of hydromechanical biofouling groups** based on the different fluid-structure behaviours given by the scientific literature and refined by mechanical tests
- Building of a **generic full scale numerical model** of floating wind system including mooring and dynamic cable
- **State of the art of technologies** allowing to automate the recognition and the metrology of biofouling, then benchmark specification

PARTNERS



This project receives French State funding of €1,130K managed by the National Research Agency under the France 2030 investment plan.

With the financial support of Bretagne, Occitanie, Pays de la Loire and SUD Provence-Alpes-Côte d'Azur regions.



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