



The Atlantic
Testing Platform for
Maritime Robotics

Topic	ICT-09-2019-2020 (H2020)
Acronym	ATLANTIS
Title	The Atlantic Testing Platform for Maritime Robotics: New Frontiers for Inspection and Maintenance of Offshore Energy Infrastructures.
Project number	871571
Delivery date	27.06.2023
Deliverable number	D5.1 (D5)
Dissemination level	Confidential
Lead Beneficiary	PPF

Database from information obtained in operational conditions

INESC TEC, Principle Power, EDP, RINA, IQUA, UdG,
ECA Group, SpaceApplications, ABB and VTT



Actions

	Action	Organisation	Date
Technical Manager	Requested deliverable from the Deliverable Responsible.	VTT	01.04.2023
Deliverable Responsible	Prepared draft of the deliverable.	PPF	27.06.2023
Technical Manager	Approved the updated draft as the first version.	VTT	28.06.2023
Quality Manager	Approved the updated first version as the second version.	UdG	30.06.2023
Project Coordinator	Approved the updated second version as the final version and sent to the European Commission.	INESC TEC	30.06.2023

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1. Introduction

This comprehensive report provides detailed information on the methods, resources, and procedures utilized during the underwater inspection of floater platform of WFA2 floating offshore wind turbine at Windfloat Atlantic wind farm.

The operation had a dual objective, to evaluate the structural integrity of the platform, also to construct a database of footage using traditional methods of underwater inspection. This database, an integral part of the deliverable D5.1, stands as a reliable reference point for future inspections.

Each campaign of the inspection was specially designed, taking into account a variety of factors including weather and sea-state conditions, availability of divers, and overall logistical convenience.

2. Inspection overview

2.1. Methodology

During this operation, divers were the primary data collectors and were deployed from an auxiliary semi-rigid boat. A blend of autonomous and semi-autonomous diving was employed, based on the safety and logistical needs of each individual dive.

High-resolution footage of the welds on the underwater structure of the platform was captured using GoPro cameras, providing crucial data for subsequent analysis.

2.2. Resources and tools

The inspection campaigns involved deploying between 5 and 6 divers each day, the number being determined by diver availability and prevailing weather conditions. Ensuring the divers' health, safety, and work capacity was upheld as a paramount concern throughout the operation.

A variety of tools were employed during the operation, among them a cavitation cleaning machine and a hydraulic wire brush. These tools enabled a clear view of the platform structure. GoPro cameras were used to document the underwater structure, while a dredging pump cleared accumulated dead marine growth around the Water Entrapment Plates (WEP).

2.3. Metocean conditions

Specific sea-state and weather conditions were maintained during the inspections to ensure diver safety and operational effectiveness. These conditions typically measured below 1.5m of significant wave height (Hs), 0.3m of wind waves, and 8m/s of wind.



2.4. Inspection schedule

Approximately 9 to 10 days were scheduled for the underwater inspection of each platform. This timeframe allowed for a comprehensive inspection of the structure without compromising on safety.

3. Access to footage

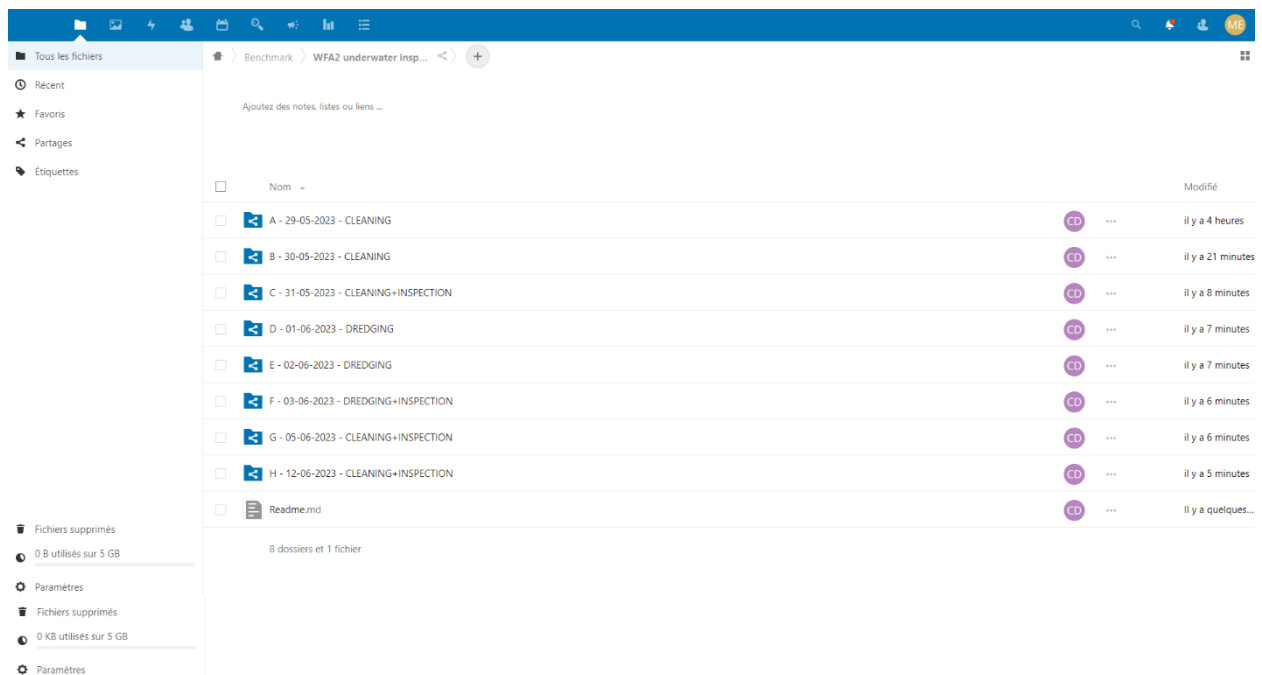
Footage was captured during the inspection, it is a crucial part of the assessment and understanding of the platform's structure. This footage, which includes both high-resolution images and video recordings, provides a thorough documentation of the underwater structure and the inspection progress. These images and videos, recorded during the operation, have been carefully sorted and uploaded to INESC TEC online drive.

To uphold privacy and confidentiality, certain steps were taken to ensure the anonymity of individuals and entities involved in the operation. Identifiable information, such as names of divers and the diving company, were made unrecognizable in the footage. Additionally, to prevent accidental disclosure of confidential or sensitive information, all audio content within the videos was removed.

The process of making certain details unrecognizable does not affect the inspection's technical aspects, thus the integrity of the structural review is preserved. A detailed and complete view of the underwater structure and the inspection process can still be obtained from the images and videos.

The footage can be accessed by following this link: <https://drive.inesctec.pt/s/oFNziYeznL5Atxw>

The online drive follows a sequential order, showcasing the progression of the inspection process. This order of viewing aids in understanding the systematic approach and consistency maintained throughout the inspection process.



Nom	Modifié
A - 29-05-2023 - CLEANING	il y a 4 heures
B - 30-05-2023 - CLEANING	il y a 21 minutes
C - 31-05-2023 - CLEANING+INSPECTION	il y a 8 minutes
D - 01-06-2023 - DREDGING	il y a 7 minutes
E - 02-06-2023 - DREDGING	il y a 7 minutes
F - 03-06-2023 - DREDGING+INSPECTION	il y a 6 minutes
G - 05-06-2023 - CLEANING+INSPECTION	il y a 6 minutes
H - 12-06-2023 - CLEANING+INSPECTION	il y a 5 minutes
Readme.md	il y a quelques...

Figure 3-1 Chronological arrangement of the inspection database

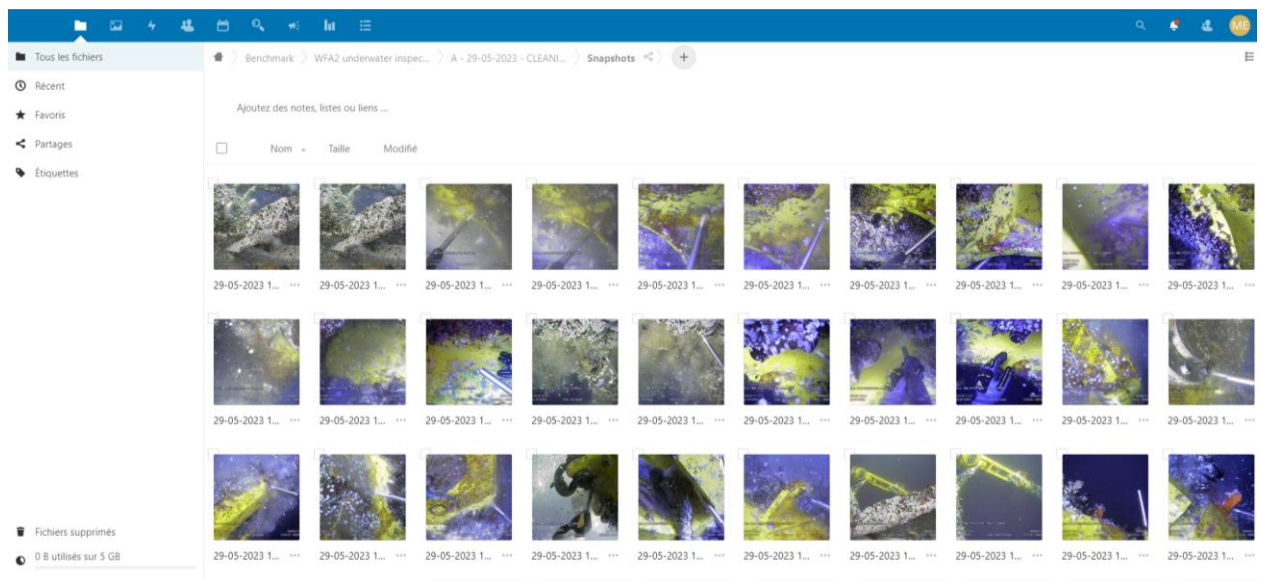


Figure 3-2 Compilation of images from the underwater cleaning process

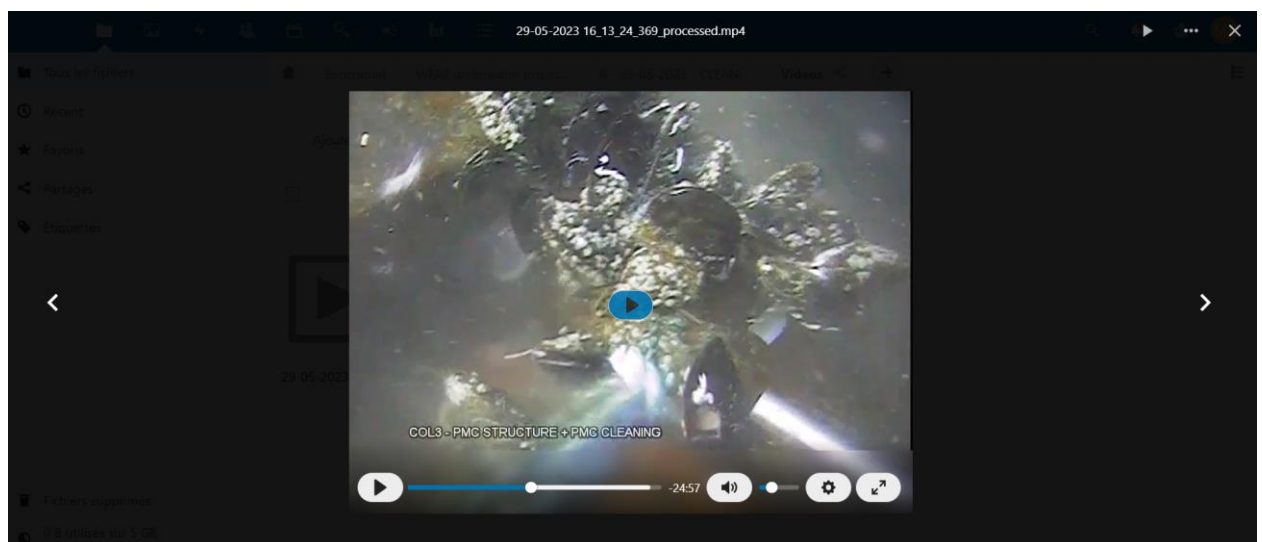


Figure 3-3 example of a video recorded during cleaning process

4. Conclusion

The successful underwater inspection of the WFA2 floater platform was achieved through meticulous planning. The results obtained, and the footage database created, contribute significantly to ensuring the platform's safety and operational longevity. The systematic approach detailed in this report can serve as a valuable reference for similar future inspections and the database of inspection footage is expected to be a robust tool for further analysis and evaluation.

