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Project Acronym: MPCS

Project title: Marine Pollution Control Simulator

Progress Report 2

Deliverable 1.2

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Period covered by the report: from 01-12-2022 to 31-07-2023

Progress Report: 2nd

Page 2



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History of Changes

Table 1: History of changes

Version	Publication date	Changes
1.0	28.07.2023	Initial version for discussion and submission





Contractual aspects

Project: Marine Pollution Control Simulator (MPCS)

<https://grupoqualiseg.com/mpcs/>

Deliverable: D1.2 – Progress Report 2

Work package: WP1 – Project Management and Coordination

Task: 1.1 – Management and Coordination

Confidentiality: Public

Version: 1.0

Contractual Date of Delivery to the EC: 31.07.2023

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Leader entity – Qualiseg

Participant(s) – Project Coordination Team members

Collaboration – All consortium partners

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Legal Disclaimer

The project Marine Pollution Control Simulator (MPCS), No. 101048546, has received funding under the Union Civil Protection Mechanism, Call: UCPM-2021-PP — Prevention and Preparedness Projects on Civil Protection and Marine Pollution, from the European Union (EU), represented by the European Commission (EC).

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1. MPC'S planned work and overview

1.1. Objectives

The MPC project aims at developing a cloud-based tool easily reachable through different platforms (mobile, tablet, or laptop), that allows the provision of training, exercising, assessment, and performance evaluation of marine pollution control, at different levels, namely:

- a. Collective and Individual competence.
- b. Regional, National, and Supranational levels.
- c. Small and large-scale scenarios.

Having in mind that the main general objectives of the UCPM-2021-PP are to:

- a. Achieve a high level of protection against disasters by preventing or reducing their potential effects, by fostering a culture of prevention and by improving cooperation between the civil protection and other relevant services,
- b. Enhance cooperation and coordination in the area of preparedness at Member State and Union level to respond to disasters,
- c. Facilitate rapid and efficient response in the event of disasters or imminent disasters, and
- d. Increase public awareness and preparedness for disasters,

MPCS project will contribute to help on reaching these objectives by the development of Training and Exercising activities and the Response Capacity Assessment (RCA) of the involved actors.

Once the general objective for Topic 2 of the above referred UCPM focuses on enhancing prevention of and protection from the effects of maritime disasters, the MPC project can play an important role by providing training, exercising, assessment, and performance evaluation of the marine pollution





control. Moreover, MPCS addresses and contributes to the general objectives and themes & priorities of this Topic 2, by:

- a. Introducing innovative teaching and training methodologies;
- b. Promoting structured and permanent collaboration frameworks between all relevant actors in the field of Marine Pollution Control.

1.2. Work planned

As illustrated in *Figure 1*, the project will encompass 3 work packages of technical nature related to the training development (from WP2 to WP4), and 2 transversal work packages (WP1 and WP5), focusing on Project Management and Coordination, and Dissemination, Communication & Visibility, respectively.

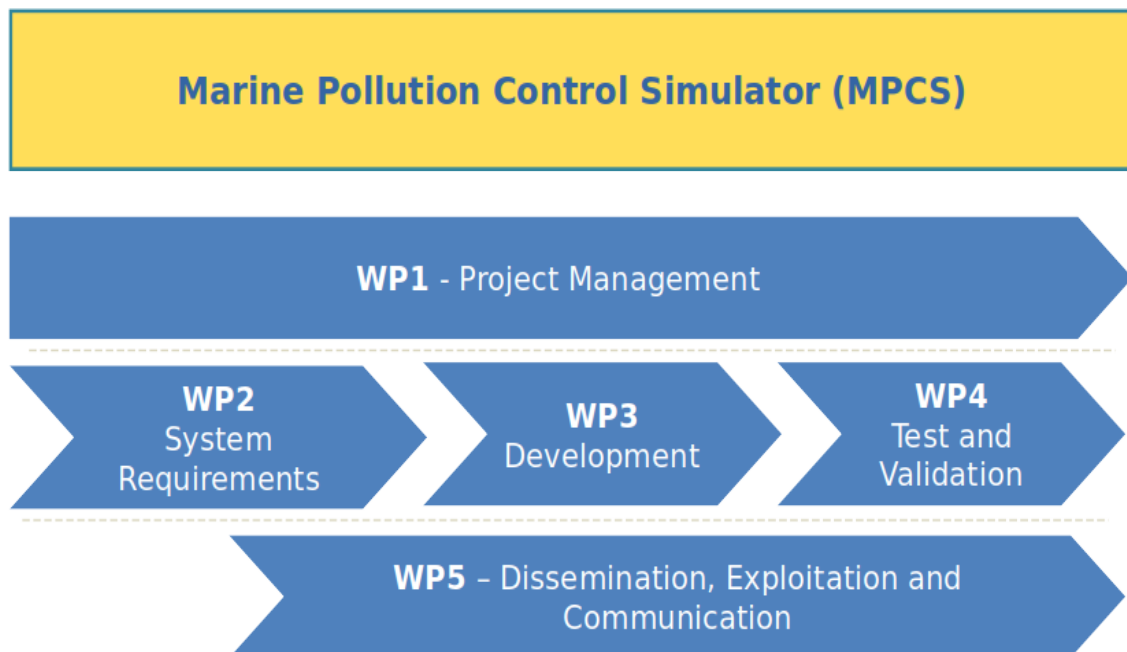


Figure 1: The MPCS's Work Packages (WP's)



The project's plan as in the Grant Agreement, may be observed in the Figure 2 below.

ACTIVITY	MONTHS																							
	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8	M 9	M 10	M 11	M 12	M 13	M 14	M 15	M 16	M 17	M 18	M 19	M 20	M 21	M 22	M 23	M 24
WP1 – Management and Coordination																								
T's 1.1 to 1.3 – full proj. durat.																								
WP2 – System Requirements																								
T2.1. Sit. Analysis																								
T2.2. Sim. Req's																								
T2.3. Op. Req's																								
WP3 – Des. & Dev. (D&D)																								
T3.1. Sim. Structure																								
T3.2. GBL solution																								
T3.3. MPCS Beta version																								
WP4 – Tests & Validation																								
T4.1. Tests specification																								
T4.2. Math. models valid.																								
T4.3. MPCS validation																								
WP5 – Dissem., Comm. and Visibility																								
T5.1. Project website																								
T5.2. Promotion events																								
T5.3. Tech. Dissem. docs																								

Figure 2: MPCS plan as in the Grant Agreement





2. Work carried out and overview of the progress

2.1. Work carried out during the last 9 months period

Between 01 December 2022 and 31 July 2023, the following activities have been carried out:

1. On 5 of December 2022, University of Coimbra (UC) members' team were involved in the Pollution Combat practical exercise and on December 7 they have attended the Pollution Combat First Responder course. Both events were held at the facilities of the Directorate for Combating Sea Pollution (DCSP), based in Lisbon, Portugal, which is the most important operational organization in Portugal with the responsibility to fight marine pollution.
2. On February 2023 (M12), Task 3.1 - Simulator Structure Design and Development was completed, as planned, and the respective deliverable (D3.1 Simulator Structure Design Report) developed and submitted.
3. On April 2023 (M14), Task 3.2 - Game-based Solution Development was also completed, as planned. Meanwhile,
 - a. Between December 2022 to March 2023, the database was developed by UC team with EVM and Qualiseg collaboration, and the MPCS Equipment catalog (booms, pumps, skimmers, land vehicles and sea vehicles) settled;
 - b. On March, the MOHID Water Modeling System acquisition process was concluded and this system integration into MPCS, as equipment module simulator, is running properly;
 - c. Between December 2022 and April 2023, EVM team has improved/updated the e-learning module "Spanish Organization, Regulation and Legislation for Marine Pollution Control" and translated into Spanish the other modules.





4. On April 2023 (M14), Task 3.3 - MPCS Beta Version Development has also started, as planned, and is running properly, with relevance for:

- The simulator software has been developed by Coimbra University, as expected, under the coordination and monitoring of Qualiseg, and with the technical consultancy provided by the expert Luís Fernandes from YellowTurtle company.
- During the last six months important work has been developed, worthing to mention the following aspects a) significant progress has been made on the simulation model with definition of the operational coordination activities; b) integrated the MOHID library for HC maritime dispersion/drift simulation; c) modules for exercise configuration and administration were largely developed; d) most user interfaces were sketched and partial implementation (circa 70%) has been developed; e) support for multiplayer actions has been developed. The development of the simulator is divided into 4 areas: numerical model of the spill and consequent interaction with meteorology and human actions, web interface for management of the simulator and users (backend, including databases), simulator interface with users (frontend) and system (server, clients). The last 3 areas are already integrated and are under development and fine-tuning. The ext steps will focus on completing the prototype and usability testing with relevant stakeholders.
- EVM has been focused on the e-learning platform development; this platform requirements are settled and currently under construction. Under Qualiseg's coordination and monitoring, the development of e-learning modules is underway. EVM has been developing the first platform with modules in Spanish. Afterward, EVM will translate and integrate the modules into Portuguese.

5. Task 4.1 - Tests Specifications Development of the WP4 (Tests and Validation), was initiated on M14 and concluded on M16, as planned, and the respective deliverable (D4.1 - Simulator Test Specification Report) developed and submitted.





6. On June (M16), Task 4.2 - Mathematical Models Validation has started, as planned, and is running properly.
7. On May 11, a General Assembly was held at Funchal, Madeira Island, during which Rui Sampaio (Qualiseg) has delivered one communication on "New approaches to education and training in sea pollution control", UC presented a video from the simulator development, and Justo López (EVM) has presented another one on "Technological and Educational Challenges and Opportunities". On the same day, during the afternoon, an event has been developed to present the project in general and the simulator concept and mock-up, in particular, to the Madeira's relevant actors.
8. On May 12, the project members have attended the Portuguese Pollution Control Annual Exercise - "ATLANTIC POLEX.PT 2023", organized by the National Maritime Authority, run in Madeira Island territorial waters.
9. On July 26, a working session/meeting took place at Coimbra University (Coimbra, Portugal) with the presence of Rui Sampaio, from Qualiseg, and Licínio Roque, Fernando Ramos, Luís Pereira, João Barata, Pedro Martins and Jorge Cardoso from Coimbra University Informatics Faculty. The objective of the meeting was to monitor/observe the platform development status.
10. The 3 Tasks of WP5 - Dissemination, Communication & Visibility are running properly. The project website content has been update in accordance with the project development.
11. As expected, the project activities have been supported on the necessary project coordination/management activities (WP1 - Project Management and Coordination).
12. Quarterly, as a base, coordination meetings involving the Project Coordination Team (PCT) took place, to make sure that all activities are running as expected and as smoothly as possible; respective reports are available.





In conclusion, all planned activities have been timely developed. The project activities of WP2 (System Requirements) are completed, and the activities of WP1 (Project Management and Coordination), WP3 (Design and Development), WP4 (Test and Validation) and WP5 (Dissemination, Communication & Visibility) are underway and running properly.

2.2. Work progress

As shown in *Figure 3*, at this project's stage (M17) the activities expected to be under execution are:

- a. the Task 3.3 (MPCS Beta version) of the WP3 (Design and Development), initiated on M14,
- b. the Task 4.2 (Maths Models validation) of the WP4 (Tests and Validation), initiated on M16,
- c. and the 3 Tasks of WP5 (Dissemination, Communication & Visibility),

all of them running as planned, supported on the necessary project coordination/management activities (WP1 - Project Management and Coordination).



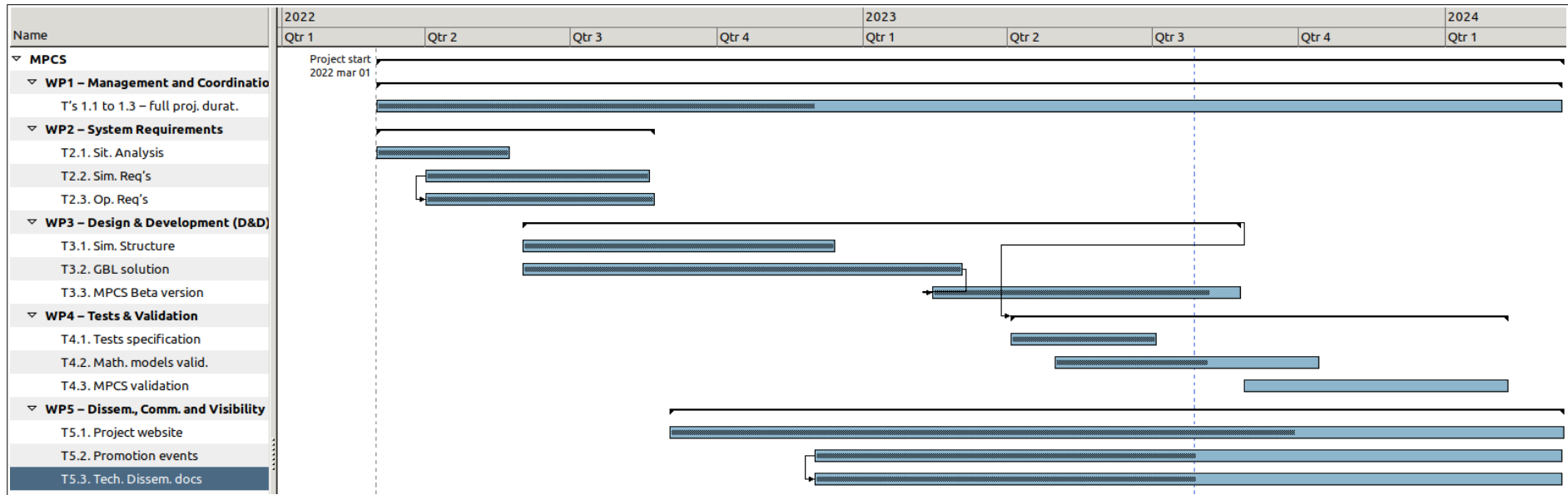


Figure 3: Project's Gantt chart on July 28

2.3. Explanation of the work carried per WP

Work Package 1 – Project Management and Coordination

- As detailed in 2.1. and shown in *Figure 3*, the expected activities were executed according with planning.
- Regular Coordination Meetings have been held, and the respective minutes archived.
- During the period covered by this document the submitted deliverables were D3.1 Simulator Structure Design Report, D4.1 Tests Specification and this D1.2 - 2nd Periodic Progress Report (please refer to 2.4.1 Deliverables).

Work package 2 – System Requirements

- The activities defined on this WP are:
 - Task 2.1 – Situation Analysis
 - Task 2.2 – Simulator Functional Requirements Definition
 - Task 2.3 – Simulator Operational Requirements Specification.
- As detailed in 2.1. and shown in *Figure 3*, all the expected activities of this WP2 were executed / completed, and the respective deliverables submitted.

Work package 3 – Design and Development

- The activities defined on this WP are:
 - Task 3.1 – Simulator Structure Design and Development
 - Task 3.2 – Game-based Solution Development
 - Task 3.3 – MPCS Beta Version Development.
- As detailed in 2.1. and shown in *Figure 3*, as planned:
 - Tasks 3.1 and 3.2 were executed / completed, and the respective deliverables submitted
 - Task 3.3 has started on M14, and is running properly.



Work package 4 – Test and Validation

- The activities defined on this WP are:
 - Task 4.1 – Tests Specifications Development
 - Task 4.2 – Maths Models validation
 - Task 4.3 – MPCS Validation
- As detailed in 2.1. and shown in *Figure 3*, and as planned:
 - Task 4.1 was executed / completed, and the respective deliverable submitted
 - Task 4.2 was started on M16, and is running properly
- As planned, the Task 4.3 was not initiated yet; it will start on the next month (M18)

Work package 5 – Dissemination, Communication & Visibility

- The activities defined on this WP are:
 - Task 5.1 – Project Website
 - Task 5.2 – Promotion events
 - Task 5.3 – Technical Dissemination Documents.
- As shown in *Figure 3*, the three tasks have been started as planned, as follows:
 - Task 5.1 – Project Website
 - (1) The operational setup of MPCS’s Project website was achieved in August 2022, as planned.
 - (2) Since then, MPCS’s Project website has been systematically consolidated and improved to a more elaborated and extensive version, and the website content has been continuously updated in accordance with the current needs and developments. This is an ongoing activity until the end of the project.
 - (3) The MPCS’s Project is being promoted by Qualiseg and IPTL through the Partners’ social media accounts (e.g., Facebook, LinkedIn and Twitter), through the project and Partners’ newsletters and press releases, as well as through the project and partners’





websites. The relevant links to the project website, partners websites and social media posts, are the following:

1. <https://grupoqualiseg.com/en/mpcs-2/>
 2. <https://grupoqualiseg.com/kick-off-for-marine-pollution-control-simulator-mpcs-project/>
 3. <https://iptl.pt/marine-pollution-control-simulator/>
 4. https://www.linkedin.com/posts/grupo-qualiseg_environment-experience-project-activity-6912352127822483456-FNFg?utm_source=share&utm_medium=member_desktop
- Task 5.2 was started on M12, as planned, and is running properly, with particular relevance to the event that took place in Madeira Island to present the project in general and the simulator concept and mock-up in particular, to the Madeira's relevant actors.
 - Task 5.3 was started on M12, as planned, and is also running properly by the development of the technical documentation.





2.4. Summary of deliverables and milestones

All planned deliverables and milestones of this period have been executed and submitted **in due time**.

2.4.1 Deliverables

Table 2: Deliverables

Deliverable Number	Deliverable Title	WP Nr	Lead Beneficiary	Type	Dissemination Level	Due Date (in months)	Comments
D3.1	D3.1 Simulator Structure Design Report	3	4 – UNIV. COIMBRA	Report	Public	12	CONCLUDED
D4.1	D4.1 Tests Specifications	4	1 – QUALISEG	Report	Sensitive	16	CONCLUDED
D1.2	D1.2 Progress Report 2	1	1 – QUALISEG	Report	Public	17	CONCLUDED

2.4.2 Milestones

Table 3: Milestones

Milestone Number	Milestone Title	WP Nr	Lead Beneficiary	Due Date (in months)	Means of Verification	Achieved?
5	MS3.1 Submission of the Simulator Structure Design Report	WP3	4 – UNIV. COIMBRA	10	Report	YES
7	MS4.1 Submission of the Tests Specifications	WP4	1 – QUALISEG	16	Report	YES

2.4.3 Summary of exploitable results

In accordance with the project’s schedule of activities, at this stage of the timeline, it was not expected to achieve any exploitable results.



2.5. Impact

At this stage of the project's development, there are no expected impacts to report. The information in section 2.1 of the Annex 1 (Description of the Action – DoA) of Grant Agreement does not need to be updated.

2.6. Delayed activities to the project planning

Nothing to refer. At this stage, all activities are in line with planned work.

2.7. Advanced activities to the project planning

Nothing relevant to refer.

2.8. Liaison with other projects

MPCS is closely related/linked with the **Atlantic Knowledge Triangle (AKT)**, an output of the Mar-LEM project (started in 2021). This Knowledge Triangle Network involves entities from Industry, Universities and port-maritime and education Authorities, constituting a “platform” that promotes effective initiatives and opportunities for Knowledge creation and dissemination. In the AKT framework and with a clear focus on skills and competences development, we are involving more than 40 organizations (mainly centred in the Atlantic Area) to launch some important initiatives, such as:

- The **Atlantic Centre of Vocational Excellence (ACoVE)** – this project is seeking for funding in the scope of the Erasmus+ Programme and involves, directly, 21 different organizations (SMEs, port-maritime clusters, universities, apprenticeship schools, authorities) from 9 countries.





- The **Atlantic Maritime Research Centre (AMRC)** is a project proposal that aims at developing an Excellence HUB for Port-Maritime Research and Innovation (PMR&I), with its “epicentre” at the EU Atlantic ultra-peripheral regions of Azores, Cabo Verde, Canary and Madeira Islands. AMRC involves, directly, 19 different organizations (SMEs, port-maritime clusters, universities, apprenticeship schools, authorities) from 6 countries
- **Capacity Building in the field of Maritime Vocational Education and Training (CBM-VET)** is a project (to be developed until Dec 2024) that involves port-maritime organizations from São Tomé and Príncipe (STP) that aims at increasing the country’s port-maritime skills and competences.

It is a clear objective **to promote and deploy MPCS** also in the broad space of AKT and in the specific reality of the above-mentioned projects. MPCS will be an important tool that will surely be exploited by the port-maritime apprenticeship schools to raise individual and collective competence in the field of the marine pollution control.

3. Conclusions and Recommendations

From the above-referred facts and evidence, it can be concluded that the project is accomplishing, so far, the established objectives. All the activities, deliverables and milestones were executed in accordance with the project planning.

Particular relevance for the establishment of connections and liaisons with other projects and for the raising of new ideas in the scope of the Atlantic Knowledge Triangle (AKT).

Having these conclusions in mind, the main recommendation is to keep pace and look for improving and innovative opportunities.

