

WP3	Deliverable D3.3
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MUSES Project

Title:	Case study implementation
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MUSES PROJECT

CASE STUDY IMPLEMENTATION v. 1.1

MUSES DELIVERABLE: D3.3: CASE STUDY IMPLEMENTATION

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1. INTRODUCTION

This document presents the results of case study implementation carried out in the framework of the Multi-Use in European Seas ("MUSES") project's Work Package ("WP")3.

The overall goal of the MUSES project is to develop an Action Plan under WP4 which will facilitate implementation of Multi-Use ("MU") in European Seas, based on innovation and Blue Growth potential. Activities under WP3 were ultimately aimed at informing the Action Plan with relevant issues for MU promotion, emerging from local contexts, experiences and perceptions. The objective of this analysis is to assess potential synergies for MU as well as the challenges encountered through a series of case studies with different thematic, geographic and focus areas dimension, and engage local stakeholders to identify barriers, opportunities, limitations and needs.

As described in the document D3.1 Case Study Methodology, case studies were developed both through desk activities of review & analysis and stakeholder involvement. Stakeholder identification and engagement were carried out in accordance with the methods described in the document D3.2 Stakeholder Engagement.

As illustrated in the MUSES project proposal, we considered seven case studies:

- Case study n.1 North Sea - Offshore wind developments coexistence with commercial fisheries / Tidal energy development / marine aquaculture & environmental interactions
- Case study n.2 Northern Atlantic Sea - West Coast of Scotland – marine renewables & aquaculture Multi-Use including the use of marine renewable energy near the point of generation
- Case study n.3 Southern Atlantic Sea - Developments of tourism and fishing in the Southern Atlantic Sea (Southern coast of mainland Portugal and Azores archipelago)
- Case study n.4 Baltic Sea - Global resource area optimization, focused on energy, food supply and environment in Swedish waters
- Case study n.5 Baltic Sea - Offshore wind production & marine biomass production & environmental remediation in Danish waters
- Case study n.6 Mediterranean Sea - Northern Adriatic Sea: Coastal and Maritime Tourism as a driver/booster for potential MU
- Case study n.7 Aegean Sea (Greece) – marine renewables & desalination, fishing & tourism off Mykonos Island

Within their scope, case study n.1 and case study n. 3 have studied specific sub-cases with different sub-geographic and thematic focus. For such a reason, they have been split - respectively - into three and two cases, independently implemented. As a consequence, this document describes the results of ten independent cases, relative to ten different marine areas across Europe.

The ten cases are the following (see Figure 1):

1. Case study 1A - Multi-use space between commercial fisheries and offshore wind farms in Scotland (East Coast of Scotland - North Sea)
2. Case study 1B - Tidal energy development and environmental protection and monitoring (North Coast of Scotland - Inner sound of the Pentland Firth - North Sea)
3. Case study 1C - Multi-use of off-shore wind farms with marine aquaculture and fisheries (German North Sea EEZ - North Sea)



4. Case study 2 - Marine Renewables & Aquaculture Multi-use including the use of marine renewable energy near the point of generation (West Coast of Scotland - Northern Atlantic Sea)
5. Case study 3A - Development of tourism and fishing in the Southern Atlantic Sea (South Coast of mainland Portugal - Algarve region - Atlantic Sea)
6. Case study 3B - Development of tourism and fishing in the Southern Atlantic Sea (Azores archipelago – Eastern Atlantic Sea)
7. Case study 4 - Multi-Use for local development focused on energy production, tourism and environment in Swedish waters (Island of Gotland - Baltic Sea)
8. Case study 5 - Offshore wind and mariculture: potentials for multi-use and nutrient remediation in Rødsand 2 (South Coast of Lolland-Falster - Denmark - Baltic Sea)
9. Case study 6 - Coastal & Maritime Tourism and O&G Decommissioning as drivers for potential Multi-use in the Northern Adriatic Sea (Italy - Mediterranean Sea)
10. Case Study 7 - Marine Renewable Energy Sources & Desalination, Fishing & Tourism in the South Aegean: the case of Mykonos Island (Greece - Mediterranean Sea).

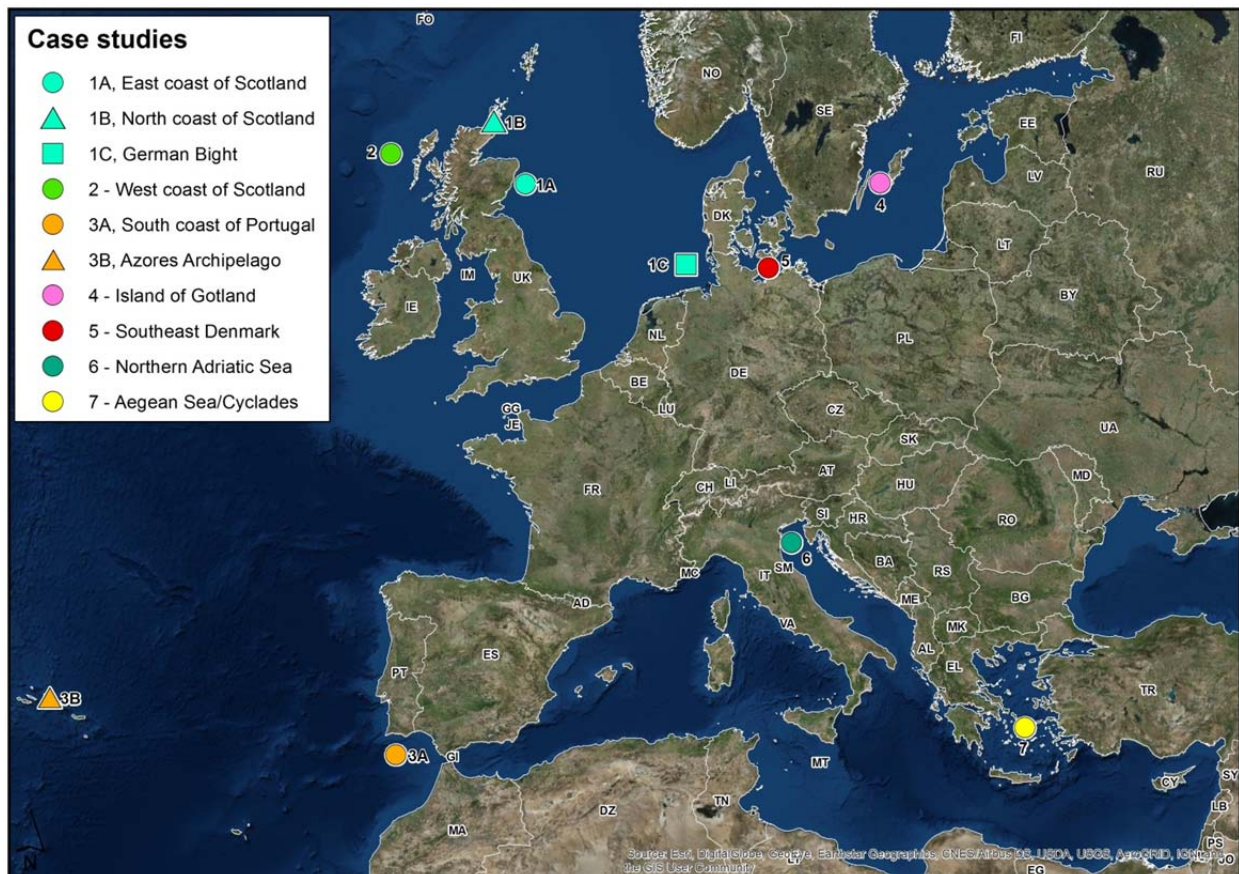


Figure 1 Geographical location of MUSES case studies



1.1 Methods for implementation of case studies

MUSES WP3 maintains a consistency with the methodological approach adopted for WP2 (Sea Basin Analysis), and particularly with the Analytical Framework (MUSES Deliverable D.2.1). For case study implementation the following definitions are considered:

- **DRIVERS** = factors promoting MU
They are defined as those factors supporting / facilitating / strengthening MU development.
- **ADDED VALUES** = positive effects/impacts of establishing or strengthening MU
They are defined as the positive effects of establishing / strengthening MU.
- **BARRIERS** = factors hindering MU
They are defined as those factors preventing /negatively affecting MU.
- **IMPACTS (NEGATIVE IMPACTS)** = negative effects of establishing / strengthening MU.
They are defined as the cons or the negative effects of implementing / strengthening MU.
- **MU POTENTIAL** is defined as the degree of opportunity the study area has to develop or strengthen MU.
- **MU EFFECT** is defined as the overall result or balance of pros and cons of developing MU in the study area.

The methodology for implementation of case studies is defined in the MUSES deliverable D3.1 Case study methodology and it foresees 5 steps (see Figure 2 and document D3.1 for more details):

- **Step 1: MU overview & identification of potentials.** In this step existing/potential MU combinations are identified, including characterization of MU type, location, legal basis, maturity, etc. Existing / potential advantages of MU, possible extensions, MU scenarios, combination and cooperation modes are explored
- **Step 2: Identification of MU Drivers, Barriers, Added value, Impacts (MU DABI).** See Figure 3 for description of the approach to Steps 2, 3 and 4. MU DABI factors are categorized by considering key issues for MU development, such as policies, administrative/legal aspects, environmental and socio-economic constrains, technical capacity, and knowledge gaps (technology, environmental impacts, health and security issues etc.). A specific part of the study is dedicated to the analysis of real vs perceived barriers, by comparing results from desk analysis with stakeholder perception (for definitions of real and perceived barriers and for the understanding of the scope of this analysis, please refer to chapter 3.2 of D2.1 - Analytical Framework).
- **Step 3: Analysis of MU potentials.** This step analyses the drivers and barriers for MU development identified in Step 2 by applying a scoring system. Drivers and barriers are scored by stakeholders according to their knowledge and experience. The relative balance between drivers and barriers identifies the potentials for MU development in the study area.
- **Step 4: Evaluation of overall MU effects.** This step analyses the added value (positive effects) and the impacts (negative effects) related to MU development identified in Step 2 by applying a scoring system. Added values and impacts are scored by stakeholders according to their knowledge. The relative balance between added value and impacts identifies the overall MU net effect in the study area. During this step stakeholders are also asked to consider and eventually integrate the catalogue of listed added values/impacts based on their experience.



- **Step 5: Analysis of Focus Areas.** Case studies are further evaluated according to common conceptual categories, defined as "Focus Areas". The following three Focus Areas are considered:
- a. **Focus Area 1 "Addressing MU":** this Focus Area analyses MUs development potentialities. It is applied both to cases where MUs of the sea are not developed yet and to cases where MUs are already in place, but actions are needed in order to fully exploit MU potential.
 - b. **Focus Area 2 "Boosting Blue Maritime Economy":** this Focus Area analyses those aspects of MUs strictly linked to the development of maritime economy. Main objectives here are: to highlight economic added-value of co-use of resources (infrastructures, services, personnel); to identify strategies reducing risks associated with economic development of combined uses; to promote local entrepreneurship and create context to favour job creation, broader social aspects and promote economic recovery.
 - c. **Focus Area 3 "Improving environmental compatibility":** this Focus Area analyses those aspects of MUs linked to the protection of the marine environment and/or minimization of existing impacts. Main objectives here are (different objectives may suit to different case studies): to identify solutions to concentrate marine activities in order to minimize the use of sea space; to identify positive and negative impacts of MU; to identify technical solutions to minimize environmental impacts; to identify win-win solutions triggering both socio-economic development and environmental protection (e.g. sustainable tourism and MPAs or small scale fishery/aquaculture and MPAs).

Focus Areas Analysis is implemented by providing answers to a set of Key Evaluation Questions (KEQs) listed in Case study methodology (MUSES deliverable D3.1). Draft answers prepared on the basis of desk analysis by case study project teams are reviewed by stakeholders.



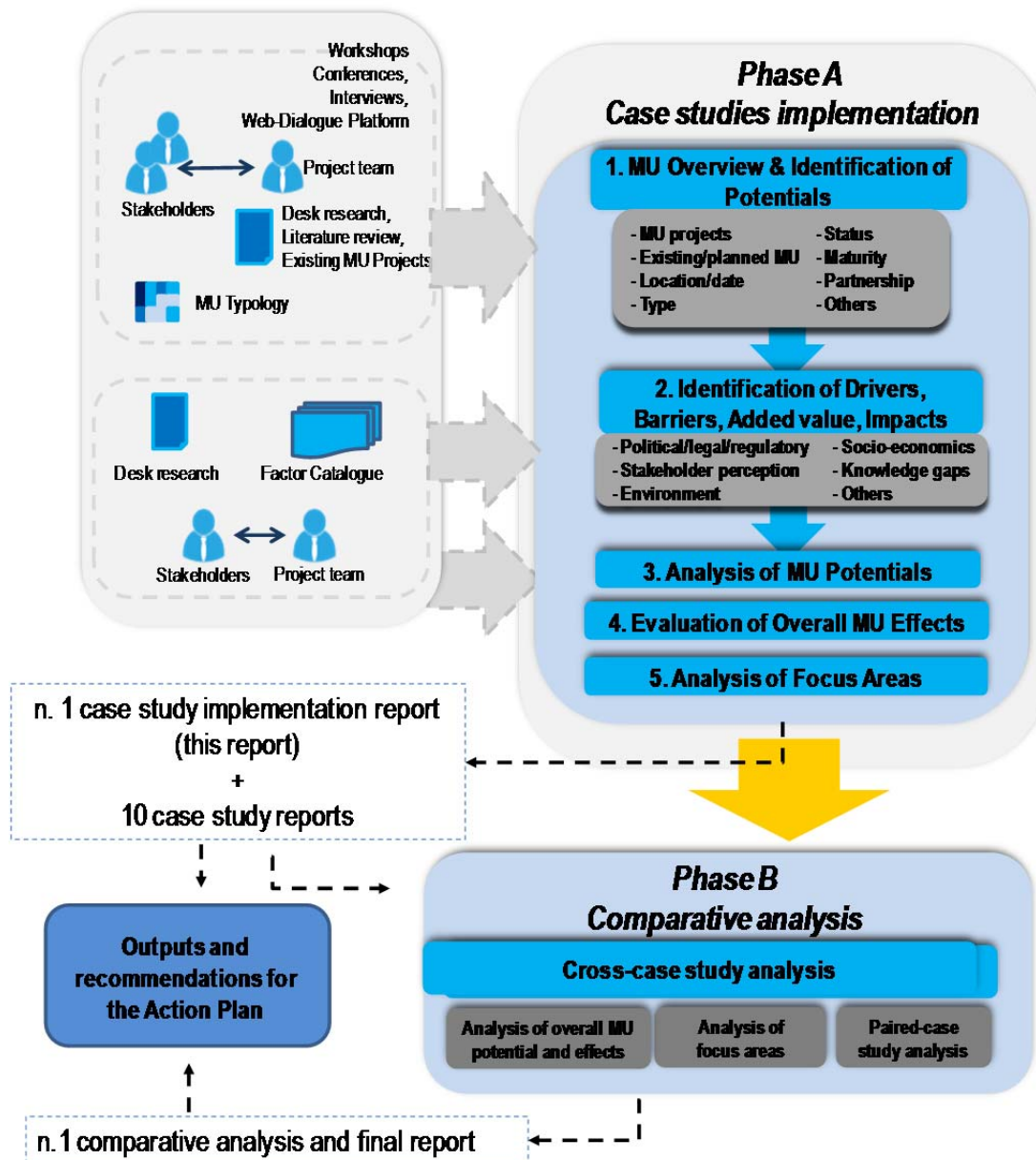


Figure 2 Graphical flow chart of WP3 and expected outputs

EVALUATING MU

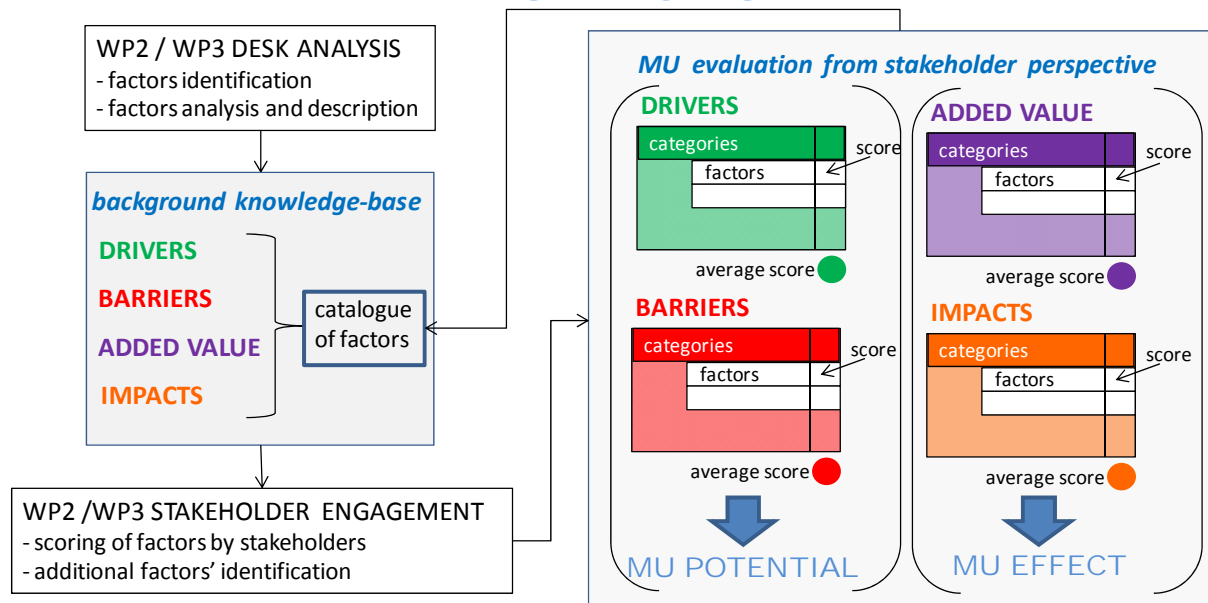


Figure 3 Diagram of the evaluation methodology of MU in Sea Basins and Case-Studies

1.2 Structure of the report

This report consists of the present introduction and ten Annexes representing the reports of the ten considered case studies. Each report is complemented by an Appendix. The overall structure and general content of the reports is as follows:

1. **Geographic description and geographical scope of the analysis.** Geographic scope of the case study is defined. Main characteristics of the area are given.
2. **Current characteristics and trends in the use of the sea.** A description of relevant maritime activities in the area is provided, focused on those relevant for in place or potential MU combinations.
3. **MU overview.** Results from Step 1 are described and commented. General background on real and / or potential MU(s) is/are given from desk analysis and stakeholder engagement. Information concerning legislation, institutional and administrative context at local level are included. Relevant national and / or local projects and experience are reported. Relevant MU combination(s) in place and / or potential are described. Combination(s) further analysed in Steps 2, Step 3, Step 4 and Step 5 are identified.
4. **Catalogue of MU Drivers, Barriers, Added value, Impacts (DABI).** Results from Step 2 are described and commented upon. For each MU combination selected, a catalogue of factors is presented, as resulting from desk analysis and stakeholder engagement. Catalogues for different combinations are presented as sub-chapters, starting with the most relevant combination. Results of the analysis on real vs perceived barriers are also included.
5. **Results of DABI scoring: analysis of MU potential and MU effect.** Results from Step 3 and Step 4 are described and commented upon here. For each MU combination selected the catalogue of factors is scored. Scoring for different combinations are presented as sub-chapters, starting with the most relevant combination. The results are then integrated with

the scores given by all the stakeholders. The score for each of the factor is the mean value of individual scores.

6. **Focus areas analysis.** Results from Step 5 are described and commented upon. A final list of KEQs (common and, eventually, case study specific) and related answers are provided and commented upon.
7. **Stakeholder engagement and local stakeholder profiles.** This chapter include two sub-chapters:
 - Detailed description of **activities carried out to engage stakeholders** i.e. description of workshops, interviews and other engagement methods.
 - **Local stakeholder profiles.** Local stakeholder profiles for each case study are compiled by case study leaders on the basis of their knowledge, acquired through desk research and stakeholder engagement at a local level. Local stakeholder profiles are compiled for all the themes (e.g. aquaculture, fishing, tourism, environmental protection, energy production, etc.) involved in the combination(s) relevant for the case study. The data are provided with reference to the relevant categories of stakeholders (selecting from: Commercial Business, Business support, Research organisations, Regulators, Funding bodies, Policy makers, Sector intermediaries, NGOs).
8. **Conclusions and recommendations from the case study to the Action Plan.** Final statements are provided about the current stage of MU development, best potential MU combination(s) for the future in the area, key solutions and actors that can contribute to enhancing MU in the area.
9. **Appendix** - An overall DABI scoring table is included, indicating scoring results from all stakeholders involved.

1.3 Annotation

The MUSES project acknowledges the fundamental contribution stakeholders provided to the analysis of MUs, particularly at case study level. It is well known that collecting stakeholders' feedback requires time, that might go beyond schedule of planned activities. Final feedback from some stakeholders in some case studies are still missing at the moment of the finalization of this report. If any major deviation from the presented results or any important knowledge element not included in this report emerge from the aforementioned feedback, they will be included in the elaboration of MUSES Deliverable D3.5 Comparative analysis and final report that will be published on-line at the end of April 2018.



ANNEXES



ANNEX 1

Case study 1A - Multi-use space between commercial fisheries and offshore wind farms in Scotland (East Coast of Scotland - North Sea)

See separated report.



This project has received funding
from the European Union's Horizon 2020
research and innovation programme
under grant agreement no 727451

ANNEX 2

Case study 1B - Tidal Energy Development and environmental protection and monitoring (North Coast of Scotland - Inner sound of the Pentland Firth - North Sea)

See separated report.



This project has received funding
from the European Union's Horizon 2020
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Annex 3

Case study 1C - Multi-use of off-shore wind farms with marine aquaculture and fisheries (German North Sea EEZ - North Sea)

See separated report.



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ANNEX 4

Case study 2 - Marine Renewables & Aquaculture Multi-use including the use of marine renewable energy near the point of generation (West Coast of Scotland - Northern Atlantic Sea)

See separated report.



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ANNEX 5
**Case study 3A - Development of tourism and fishing in the Southern
Atlantic Sea (South Coast of mainland Portugal - Algarve region -
Atlantic Sea)**

See separated report.



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ANNEX 6

Case study 3B - Development of tourism and fishing in the Southern Atlantic Sea (Azores archipelago – Eastern Atlantic Sea)

See separated report.



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ANNEX 7

Case study 4 - Multi-Use for local development focused on energy production, tourism and environment in Swedish waters (Island of Gotland - Baltic Sea)

See separated report.



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ANNEX 8

Case study 5 - Offshore wind and mariculture: potentials for multi-use and nutrient remediation in Rødsand 2 (South Coast of Lolland-Falster - Denmark - Baltic Sea) (South Coast of Lolland-Falster - Denmark - Baltic Sea)

See separated report.



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ANNEX 9

**Case study 6 - Coastal and Maritime Tourism and O&G
Decommissioning as drivers for potential Multi-use in the Northern
Adriatic Sea (Italy - Mediterranean Sea)**

See separated report.



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ANNEX 10

**Case Study 7 - Marine Renewable Energy Sources & Desalination,
Fishing & Tourism in the South Aegean: the case of Mykonos Island
(Greece - Mediterranean Sea)**

See separated report.



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