

MULTI-USE IN EUROPEAN SEAS (MUSES) WORK PACKAGES 2,3 AND 4

Summary

MUSES is a two-year Horizon 2020 funded project coordinated by Marine Scotland under Grant Agreement No. 727451. It builds on existing knowledge to explore the real opportunities for Multi-Use (“MU”) in Europe in the five EU sea basins (Baltic Sea, North Sea, Mediterranean Sea, Black Sea and Eastern Atlantic).

Consortium

The MUSES Consortium of 10 partners includes a mix of consultancies, academia, and government bodies providing a strong team with complementary skills. The Consortium was formed with partners that ensure we have excellent geographical coverage, understanding and relevant links to key stakeholders in the five sea basins.

Objectives

The objectives of MUSES are to:

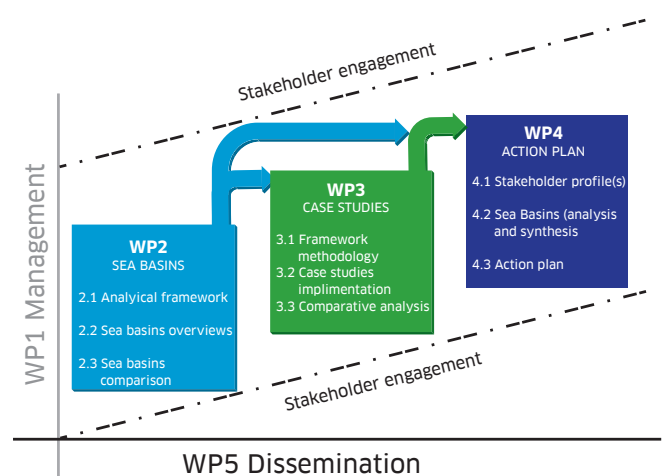
- Explore the opportunities for MU in European Seas, including the scope for innovation and Blue Growth potential

Marine Scotland	Scotland
The Maritime Institute in Gdansk	Poland
THETIS SPA	Italy
SUBMARINER Network for Blue Growth EEIG	Germany
The Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research	Germany
Ecorys	Netherlands
Fundação Gaspar Frutuoso	Portugal / Azores
The Hellenic Centre for Marine Research	Greece
The Institute of Marine Sciences - National Research Council	Italy
The University of Dundee	Scotland

- Present practical solutions on how to overcome existing barriers and minimize risks associated with MU development whilst maximising local benefits
- Provide an understanding of environmental, spatial, economic and societal benefits of co-location
- Highlight challenging regulatory, operational, environmental, health and safety, societal and legal aspects.

MUSES Work Package (“WP”) Overview

- WP1 deals with Project Management
- WP2 will consider MU at a Regional EU sea basins level
- WP3 will consider and analyse MU through a comprehensive set of case studies
- WP4 will develop an Action Plan
- WP5 deals with dissemination and communication
- WP6 deals with research ethics requirements.



WP2: Regional Sea Basin Overviews

WP2, led by the Maritime Institute in Gdansk (“MIG”), used an Analytical Framework to create a standardised research methodology at regional sea basin level. This methodology was then used to develop five Sea Basin Interim Reports (using data gathered from 22 adjacent countries) which will inform the Final Sea Basin Report and subsequent WP4 Action Plan.

Analytical Framework (AF)

The AF was created to guide the process of information and data gathering, desk analysis and stakeholder engagement. Activities included:

- Step 1 – MU definition & Typology
- Step 2 – Country based analysis
- Step 3 – Integrated Sea Basin Analysis of MU
- Step 4 – Iterative Analysis

1. Offshore Wind Energy and Wave Energy
2. Aquaculture and Environmental Protection
3. Underwater Culture Heritage, Tourism and Environmental Protection
4. Fisheries, Tourism and Environmental Protection

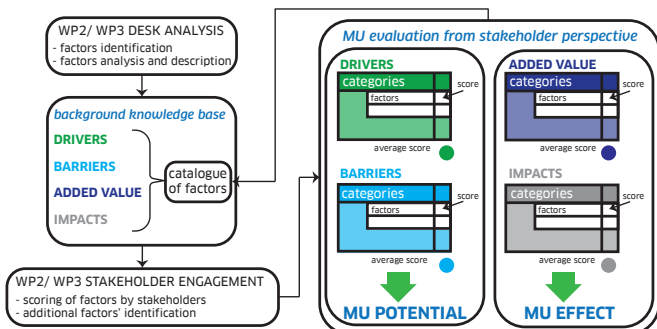
Sea Basin Interim Reports

The Sea Basin reports determine existing MU, planned or likely to occur MU and MUs proposed by stakeholders. The reports also consider the three most relevant MU combinations for each sea basin.

Final Sea Basin Report

A Final Sea Basin Report will identify the most prominent MUs emanating from a Comparative Sea Basin Analysis. Although this is scheduled for completion in April 2018, preliminary findings suggest that the following 8 MU combinations are most relevant across all Sea Basins:

EVALUATING MU



Stakeholder Workshop

In 2017, a stakeholder workshop was held to discuss the common definitions associated MU with stakeholders, including types of MU, users, uses, and resources. Stakeholders were also asked to vote for the most important MU combinations from their perspectives and the top four were:

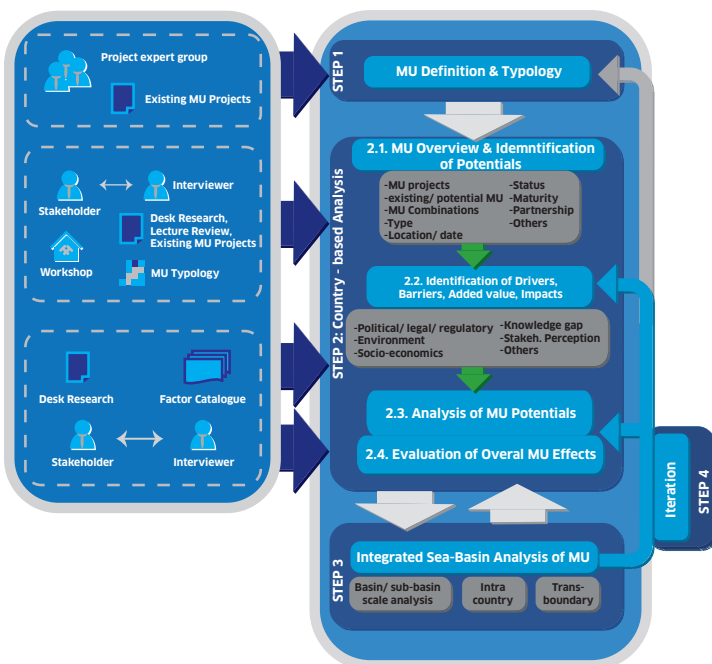
No	MU Combination	Sea Basin where MU Potential
1	Offshore Wind Energy & Aquaculture	NS, EA, BSR, MED
2	Offshore Wind Energy & Tourism	NS, EA, BSR
3	Offshore Wind Energy & Fishery	NS,
4	Aquaculture & Tourism	EA, MED
5	Fishery, Tourism, & Environmental Protection	MED, BS, EA
6	Under Water Heritage, Tourism, & Environmental Protection	EA,BS, BSR, MED
7	Tidal Energy & Wave Energy	EA, NS
8	Offshore Wind Energy & Wave Energy	NS

WP3: Case Studies

WP3, led by Thetis SPA, considered MU through 10 distinct case studies of real and/or potential MUs. The aim was to illustrate the benefits in combining different uses and explore MU potentiality, opportunities and limitations. Some initial results were published in November 2017 and the Comparative Analysis and Final Report is set for delivery in April 2018.

Each case study considered the drivers, added values, barriers, and impacts (DABI) for MU combinations, which were scored and averaged in order to determine MU potential and MU effect. In addition, a standardised list of Key Evaluation Questions (KEQs) was developed for three Focus Areas:

- Addressing MU
- Boosting Blue Growth Potential
- Improving Environmental Compatibility



	FA1: Addressing - MU	FA2: Boosting Blue-Growth potential	FA3: Improving environmental compatibility
Case-Study 1			
Case-Study 2			
Case-Study 3	FA1 Key Evaluation Questions	FA2 Key Evaluation Questions	FA3 Key Evaluation Questions
Case-Study 4			
Case-Study 5			
Case-Study 6			
Case-Study 7			

Case Study Methodology

The case study methodology was developed both through both desk-based activities and stakeholder involvement and included consideration of:

- Existing legal, policy, strategic and planning documents
- Literature findings and experience from completed and on-going international projects
- Stakeholder involvement
- Other available information.

Case Study Implementation

A report presenting the 10 completed case studies was published in November 2017. Stakeholders were engaged through 117 interviews, one workshop, one focus group and participation with other independent initiatives. A total of 26 DABI catalogues were produced.

Comparative Analysis and Final Report

DABI catalogues and KEQ responses provide the essential knowledgebase for the development of the Comparative Analysis and Final Report, scheduled for completion in April 2018. The findings from the document will inform the development of the WP4 Action Plan.

WP4: Action Plan

WP4 is being led by the SUBMARINER Network and will develop an Action Plan to address the challenges and opportunities for the development of MU's in European Seas. The Action Plan will draw upon WP2 and WP3 to provide recommendations for future implementation of MU.

Overview of Stakeholder Profiles

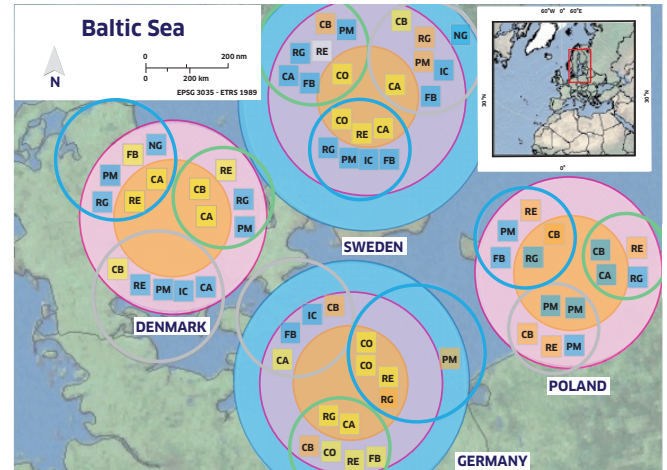
The Overview of Stakeholder Profiles is the first step in producing the Action Plan and provides analysis of 629 stakeholders. These MU combinations are:

MU	Eastern Atlantic	North Sea	Mediterranean	Baltic Sea	Black Sea
Aquaculture & Renewables					
Aquaculture & Offshore Wind					
Aquaculture & waves					
Shipping Terminal & Offshore Wind					
Tidal & Wave					
Tidal & Environmental Protection + Monitoring					
Offshore Wind & Wave					
Offshore Wind & Tourism					
Aquaculture & Environmental Protection					
Underwater Cultural Heritage, Tourism, & Environmental Protection					
Aquaculture & Tourism					
Offshore Wind & Environmental Protection					
Offshore Wind & Fisheries					
Fisheries, Tourism, & Environmental Protection					
Oil & Gas, Tourism, & Aquaculture					
Oil & Gas & Renewables					
Fisheries & Environmental Protection					

KEY:

BELGIUM		ESTONIA		IRELAND		THE NETHERLANDS		SLOVENIA	
BULGARIA		FINLAND		ITALY				SPAIN	
CROATIA		FRANCE		LATVIA		POLAND		SWEDEN	
CYPRUS		GERMANY		LITHUANIA		PORTUGAL		UNITED KINGDOM	
DENMARK		GREECE		MALTA		ROMANIA			

The diagram below illustrates stakeholder attitudes for MU of Aquaculture and Offshore Wind in the Baltic Sea Basin where orange is positive, pink is neutral and blue is negative.



Overview of MU Analysis & Sea Basin Syntheses

Results from WP2 and WP3 will inform the Overview of MU Analysis and Sea Basin Synthesis reports by highlighting real versus perceived barriers. The reports will present the following:

- Indicate the potential for MU
- Highlight barriers and solutions
- Highlight locations of benefits
- Present models and actions for integration
- Identify stakeholders and incorporate feedback

Action Plan

The Action Plan, set for completion in September 2018, represents the culmination of the research and stakeholder engagement undertaken in the MUSES project. The Action Plan will target the right stakeholders with the right action, at national, regional and sea basin dimensions. Innovation and Blue Growth potential will be explored, and solutions to overcome barriers will be proposed.

To find out more about the MUSES project, please visit <https://muses-project.eu/>

