

Combining multiple maritime uses in European seas: the MUSES project

Andronikos Kafas



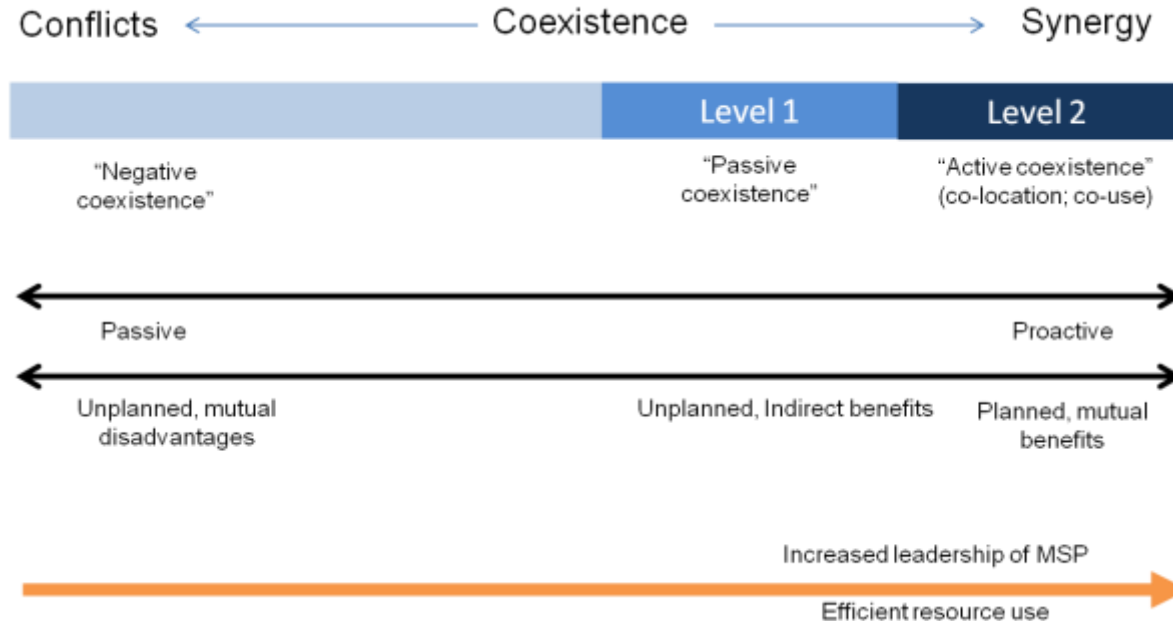
Scottish Government
Riaghaltas na h-Alba
gov.scot

Environmental Interactions of Marine Renewable Energy
Technologies - Orkney, 24-27 April 2018

 @a_kafas

marinescotland

Why Multi-use?



ICES WGMPCZM (2018) Workshop on Coexistence and Synergies in Marine Spatial Planning. Edinburgh

The MUSES project



The MUSES project



- ❑ EU Horizon 2020 funded project,
- ❑ ca. EUR 2M; 24 Month (Nov 2016 - Oct 2018),
- ❑ 10 partners from 7 countries

EASTERN ATLANTIC OCEAN

Azores

Scotland

NORTH SEA

BALTIC SEA

Germany

Poland

Netherlands

Italy

BLACK SEA

Portugal

Greece

MEDITERRANEAN SEA

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Azores



ECORYS



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Andronikos Kafas - MUSES @ EIMR 2018

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Azores



ECORYS



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Project aims

Contribute to policy, legal and administrative harmonization and improvement to overcome barriers to Multi-Use (MU).

- ✓ Investigate environmental, spatial, economic and societal **benefits** of MU,
- ✓ Highlight inappropriate regulatory, operational, environmental, H&S, societal and legal **barrier** to Multi-Use
- ✓ distinguishing between **real and perceived** barriers;
- ✓ Propose solutions and **actions** to be taken.

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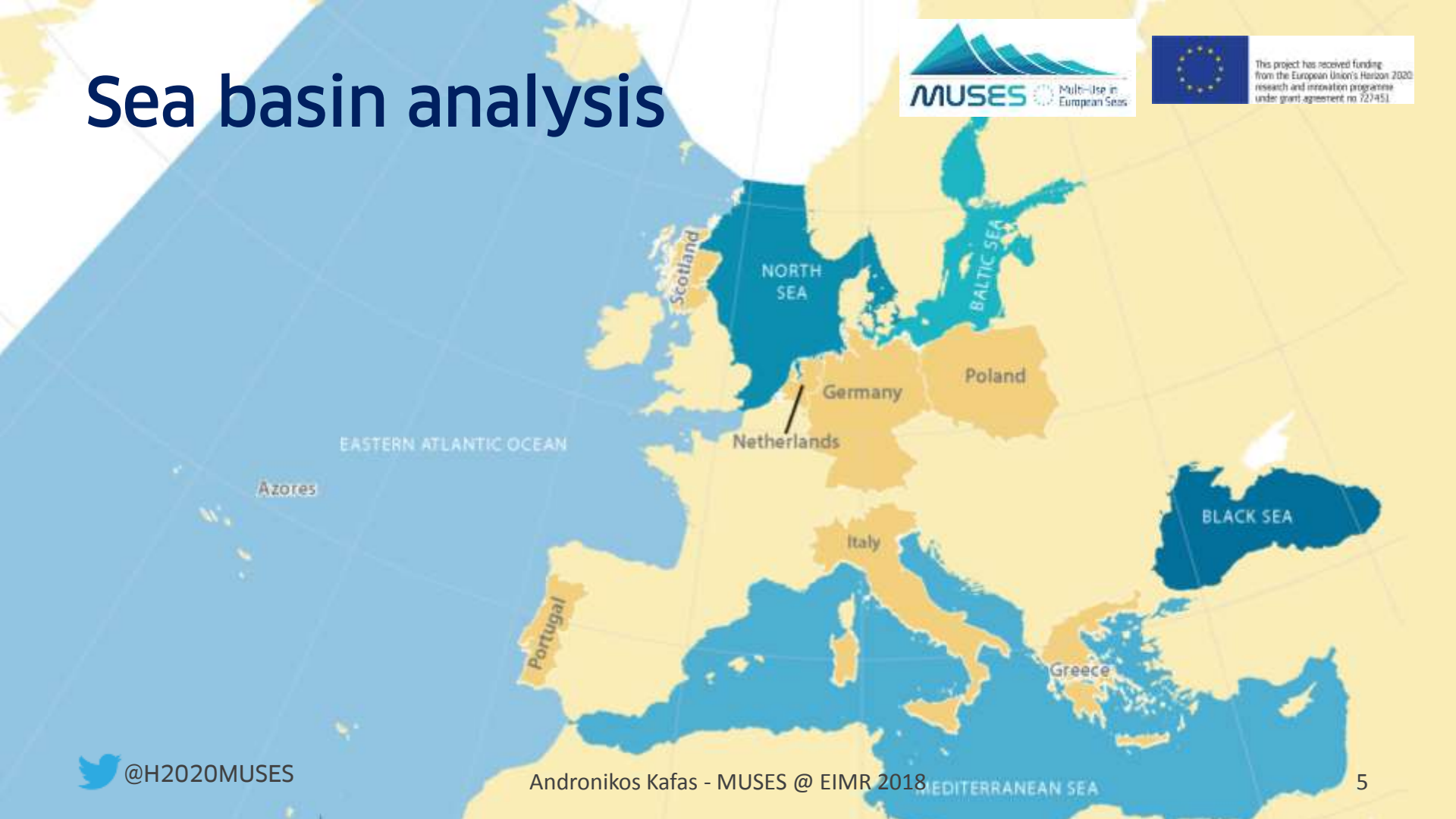
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Building on existing knowledge



Sea basin analysis



Sea basin analysis



5 EU Sea
BASINS
ANALYSED

23 EU
COUNTRIES
REVIEWED

195
STAKEHOLDER
INTERVIEWS

14 MU
COMBINATIONS
ANALYSED

Case studies

ENGAGEMENT:
117 INTERVIEWS
1 WORKSHOP
1 FOCUS GROUP
EXTENDED NETWORKING

15 MOST PROMISING MULTI-USE COMBINATIONS IDENTIFIED

MORE THAN 90 ACTIONS SUGGESTED



Multi-Use definition



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

“The joint use of resources in close geographic proximity”

This can involve either a single user or multiple users performing multiple uses.

Multi-Use definition



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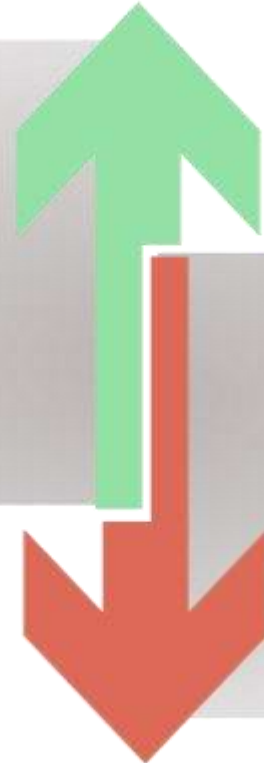


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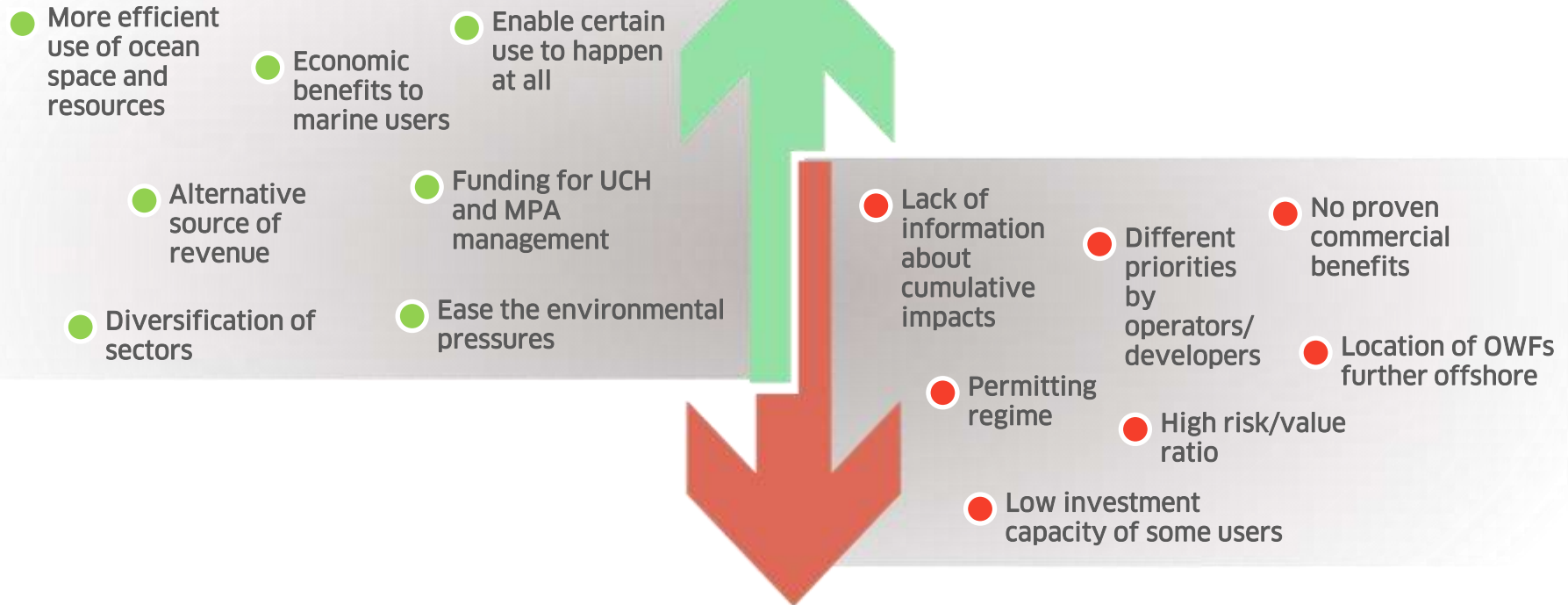
“The joint use of resources in close geographic proximity”

This can involve either a single user or multiple users performing multiple **uses**.

MU drivers & barriers




MU drivers & barriers




MU in strategic & legal documents by EU country

MU in national strategic documents	ATLANTIC					MEDITERRANEAN SEA								BLACK SEA		BALTIC SEA								NORTH SEA					
	UK	RI	PT	ES	FR	ES	FR	IT	SI	HR	GR	MT	CY	RO	BG	FI	EE	LV	LT	PL	SE	DK	DE	DE	DK	NL	BE	UK	FR
MU in national legislation																													
MU at individual administrative decision level																													
Economic incentives for MU																													
MU at MSP level - explicit reference of MU in National Marine Plans																													
MU in strategic documents																													

Przedzimirska J. et al. (2018) Multi-use concept in European Sea Basins (MUSES WP2 Final Report). MUSES Project. Edinburgh

 MU reference present

 MU reference absent

MU combinations by EU country

MU Combinations by EU country	ATLANTIC					MEDITERRANEAN SEA								BLACK SEA		BALTIC SEA						NORTH SEA							
	UK	RI	PT	ES	FR	ES	FR	IT	SI	HR	GR	MT	CY	RO	BG	FI	EE	LV	LT	PL	SE	DK	DE	DE	DK	NL	BE	UK	FR
1 QW & Aquaculture																													
2 QW & Tourism	E																												
3 QW & Fisheries																													
4 Aquaculture & Tourism																													
5 Fisheries & Tourism & Environmental Protection																													
6 UCH & Tourism & Environmental Protection																													
7 Tide & Wave																													
8 QW & Wave																													
9 QW & Environmental Protection																													
10 QW & Shipping terminal																													
11 Wave & Aquaculture																													
12 O&G & Renewables																													
13 O&G & Tourism & Aquaculture																													
14 Aquaculture & Environmental Protection																													



Pilot/test trials experience ("E" for existing initiatives)



MU Potential with min. one use in place



MU Potential with none use in place

Przedzrymirska J. et al. (2018) Multi-use concept in European Sea Basins (MUSES WP2 Final Report). MUSES Project. Edinburgh

MU combinations by EU country



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MU Combinations by EU country	ATLANTIC				MEDITERRANEAN SEA								BLACK SEA		BALTIC SEA						NORTH SEA							
	UK	RI	PT	ES	FR	ES	FR	IT	SI	HR	GR	MT	CY	RO	BG	FI	EE	LV	LT	PL	SE	DK	DE	DE	DK	NL	BE	UK
	MU name																						EA	NS	BSR	MED	BS	
1 QW & Aquaculture	MU1 Offshore Wind and Aquaculture																						1/2	3/1	1/3	1/1	-	
2 QW & Tourism	MU2 Offshore Wind and Tourism																						1/1	1	3/2	-	-	
3 QW & Fisheries	MU3 Offshore Wind and Fisheries																						1	4	1	-	-	
4 Aquaculture & Tourism	MU4 Aquaculture and Tourism																						3/1	-	1	3/3	2	
5 Fisheries & Tourism & Environmental Protection	MU5 Fisheries and Tourism and Environmental Protection																						3	-	1	5/3	2	
6 UCH & Tourism & Environmental Protection	MU6 Underwater Cultural Heritage and Tourism and Environmental Protection																						3	-	4/2	1/4	2	
7 Tide & Wave	MU7 Tide and Wave																											
8 QW & Wave	MU8 Offshore Wind and Wave																											
9 QW & Environmental Protection																												
10 QW & Shipping terminal																												
11 Wave & Aquaculture																												
12 O&G & Renewables																												
13 O&G & Tourism & Aquaculture																												
14 Aquaculture & Environmental Protection																												

Num. of countries that MU exists

Num. of countries with MU potential

- Pilot/test trials experience ("E" for existing initiatives)
- MU Potential with min. one use in place
- MU Potential with none use in place

Przedzrymirska J. et al. (2018) Multi-use concept in European Sea Basins (MUSES WP2 Final Report). MUSES Project. Edinburgh

	Wind energy	Wave energy	Tidal energy	Renew. energy (general)	Oil & Gas	Tourism	Fisheries	Aquacult.	UCH	Desalin.	Maritime transport	Env. protection	Env.Monit oring
Wind energy						4, 5	1A, 1C	1C, 4, 5				5	
	Wave energy							2					
		Tidal energy										1B	1B
			Renew. energy (general)		6					7	2		
				Oil & Gas		6		6					
					Tourism		3A, 3B, 6, 7	3A, 6	3B, 6			3A, 3B, 6, 5	
						Fisheries							
							Aquacult						
									UCH			3B	
									Desalin.				
										Maritime transport			
											Env. protection		
												Env.Monit oring	

1A	North Sea - East Coast of Scotland
1B	North Sea - North coast of Scotland
1C	North Sea – German EEZ
2	Northern Atlantic Sea
3A	Southern Atlantic Sea –South coast of mainland Portugal
3B	Southern Atlantic Sea – Azores Archipelago
4	Baltic Sea – Island of Gotland – Sweden
5	Baltic Sea Southern Denmark
6	Mediterranean sea -Northern Adriatic Sea
7	Mediterranean sea - Aegean Sea

Offshore wind farms & Fisheries




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



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Kafas A. et al. (2018) Offshore wind and commercial fisheries in the East Coast of Scotland (Case Study 1A). MUSES Project. Edinburgh

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Offshore wind farms & Fisheries

Drivers

- Administrative: Satisfy marine licence conditions & avoid licensing delays
- Indirect economic: Avoid unnecessary costs
- Societal: food security & clean energy, links to CSR
- Technological: most tools & techniques currently available

Kafas A. et al. (2018) Offshore wind and commercial fisheries in the East Coast of Scotland (Case Study 1A). MUSES Project. Edinburgh

Offshore wind farms & Fisheries

Barriers

- Single-sector challenges
- Ineffective consultation processes
- No spatial policies for commercial fisheries
- No legal requirement for compensation & non-statutory consultee
- Spatial data issues
- Current EIA practice
- Perceptions about safety of operations
- Power imbalances & negative attitudes

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News: Marine Scotland Blog - [Renewable Energy](#)

Data: google search [Marine Scotland Interactive](#) & [National Marine Interactive](#)

marine scotland
science



Acknowledgements

MUSES partners

Bruce Buchanan

Tim Roberts

Ian Davies

Find us at:

muses-project.eu

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